Report of the
Chief Inspector of Mines
in India
1914-1918

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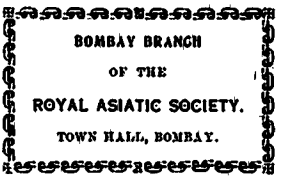

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Department of Mines, India

REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA

Under the Indian Mines Act (VIII of 1901)

FOR THE

YEAR ENDING 31st DECEMBER

1914 & 1918

134446

BY

G. F. ADAMS, M. Inst. C. E.
Chief Inspector of Mines in India

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FROM

G. F. ADAMS, ESQ., M.INST.C.E.,

Chief Inspector of Mines in India,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,
DEPARTMENT OF COMMERCE AND INDUSTRY.

Dated Dhanbad, 18th June 1915.

SIR,

I HAVE the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1914.

EXPLANATORY INTRODUCTION.

It is necessary to explain that this is a report relating entirely to the administration of the Indian Mines Act, 1901, and is not a complete statistical review of Indian Mining and analogous industries. It should be remembered in reading the statistics that there must be a considerable output from quarries which are under 20 feet deep; and owing to the exclusion of such places from the scope of the Mines Act, these figures should not be regarded as a complete index to the production of the mineral wealth of the country.

Figures of production of all minerals raised in British India and the Native States, whether from workings under the Act or not, are published annually in the Records of the Geological Survey of India, whilst every five years a Quinquennial Review of the Mineral Production of India is issued by the same Department. The latest review published is that for the years 1904-1908 (Records, Geological Survey of India, Vol. XXXIX). Figures for Mysore, where most of the Indian gold is raised, are given in the report of the Chief Inspector of that Native State, and mineral statistics may also be found in the administrative reports of the various Presidencies, Provinces and States of India.

This report is divided into five sections, *viz*:—

Section I.—Persons employed.
„ II.—Output of mineral.
„ III.—Accidents.
„ IV.—Prosecutions and additions to the Act.
„ V.—General remarks.

Section I.—Persons Employed.

During the year 1914 the average number of persons working in and about the mines regulated by the Indian Mines Act was 185,211, of whom 120,071 worked underground and 65,140 on the surface. One hundred and fifteen thousand, one hundred and seventy-four were adult males, 64,179 were adult females and 5,858 were children under 12 years of age. This is an increase of 3,951 workers or 2·18 per cent.

Those employed in coal mines numbered 137,851, which is an increase of 4,809 only over those employed in 1913.

Of this increase 3,319 persons are accounted for in the coalfields of Bihar. The labour-supply in Bengal was almost stationary, and managers, except at

OTHER MINERALS.

An output of 9,280 cwts. of Bauxite is reported this year from the Jabalpur district in the Central Provinces, the mine having been unworked during the years 1910-1913.

For the first time, an output of 16 lbs. of Pitchblende and 200 cwts. of Triplite is shown in the list of minerals raised from mines classed under the Indian Mines Act. Both these minerals were won from a mine in the district of Gaya (Bihar and Orissa).

125,348 tons of Granite were won from quarries in the Amherst district in Burma.

There were increases in iron, slate, clay, fuller's earth, limestone, galena and samarskite and decreases in salt, chromite, corundum, magnesite, tin and steatite.

Section III.—Accidents.

During the year 1914, at mines regulated by the Indian Mines Act, 1901, there were 152 fatal accidents, being an increase of 16, as compared with the number in 1913, and an increase of 22 as compared with the average number of last five years.

These accidents involved the loss of 191 lives. This is a decrease of 20 upon the number of deaths in 1913.

There was no single accident involving a large death roll, as was unfortunately the case in 1913. In one case, however, 6 lives were lost owing to a fall of roof in a coal mine, and in two cases 5 lives were lost, one by an explosion of gunpowder in a salt mine, and the other by an irruption of water in a mica mine. In five cases 3 persons, and in fifteen cases 2 persons, were killed.

Of these 152 accidents I regard (*a*) 77 as being due to misadventure, (*b*) 42 to the fault of the deceased, (*c*) 5 to the fault of fellow workmen, (*d*) 12 to the fault of subordinate officials and (*e*) 16 to the fault of the management.

Of the 42 accidents due to the fault of the deceased, 27 were accidents from falls of roof and sides in coal mines, and in nearly every case were due to the deceased person deliberately leaving his proper working place and proceeding to cut coal elsewhere. As a rule either the corner or the side of a pillar is selected in these cases, the coal being much easier to cut than in a gallery, too easy in fact, as the occurrence of the accidents prove. In 18 cases a fence was crossed. The accidents from falls of roof and sides together amounted to 95, and consequently a very substantial decrease in these accidents and the accident rate generally would result if these improper practices could be stopped. For every case in which an accident occurs, there must be many more cases, in which the wrong-doer has procured his easily got coal with impunity. That at some mines the practice is much more common than at others, an examination of the pillar corners and sides will show. At all but some of the smallest mines, Rules under Section 21 are now established, one of which reads as follows:—"No person shall work in any place other than the one in which he has been ordered to work by an officer of the mine or by any person in whose charge he has been placed by an officer of the mine." Another reads:—"No person, either above or below ground, shall remove or pass through any fence, or remove or pass any danger-signal unless so especially authorised by the manager or other officer empowered by the latter in that behalf."

Although reasonable time must be allowed for bringing employees into line under these rules, still the breach of either of these two leads so frequently to loss of life, that managers should discharge their responsibilities under Section 14(2) of the Mines Act by taking proceedings against any miner found breaking them. Under another rule an official is bound to report to the manager or under-manager any such case he may detect, and this obligation should be clearly impressed upon such officials.

The whole question of accidents occurring through the fault of the deceased is very much a question of discipline, and appointing subordinate officials who have the capacity to command obedience. It is important too that supervision should not be relaxed at night, and that night and day officials should relieve each other underground, so that miners may not be left to themselves in a mine at any time. Inexperienced miners especially should be carefully watched.

In many cases falls of roof and side are due to neglect to recognise slips, cleats and faults, which all tend to loosen ground.

There was a large increase in the total number of deaths from falls of roof and sides, the number being 95, as compared with 78.

Next to falls of roof and side, by far the largest number of accidents which occurred were connected with haulage. They were 21 in number. Carelessness on the part of the hookmen, in failing to couple up all the tubs, or the failure of couplings, either by fracture or accidental detachment, are the most frequent causes of haulage accidents in Indian mines. The former cause can generally be corrected by proper stop blocks or runaway points. On steep haulage planes a separate rope or chain, attaching the first tub to the last, is a safeguard against faulty couplings.

The death-rate per thousand persons employed was 1·03, while that of the preceding five years was 1·17. At coal mines only these figures were 1·05 and 1·34, and at mines other than coal 0·97 and 0·69. At coal mines in England during the ten years ending with and including 1913, the death-rate per thousand persons employed varied from 1·17 (lowest) to 1·69 (highest).

The death-rate per million of tons raised at coal mines only was 9·22 while that of the preceding five years was 11·96. At coal mines in England during the ten years ending with and including 1913, the death-rate per million tons raised varied from 4·29 (lowest) to 6·37 (highest).

Of the 191 persons killed 166 were males and 25 were females.

The deaths occurring in each class of mine worked were as follows :—

One hundred and forty-five in coal mines, 12 in wolfram mines, 10 in mica mines, 7 in manganese mines, 6 in copper mines, 5 in salt mines, 4 in gold mines, 1 in iron mines and 1 in ruby mines.

One person lost his life by explosion of fire-damp, 48 by falls of roof, 47 by falls of side, 22 in shafts, 1 by suffocation by gases, 16 by explosives, 8 by irruptions of water, 21 by haulage, 10 by other accidents underground and 17 on the surface.

A list of these accidents appear in Appendix II, Table I. In addition to them there were 35 others, causing the death of 36 persons. These also appear in Appendix II, Table I, but are listed separately, a reason being given in each case for their exclusion from the statistical tables.

In the Bengal and Bihar coal mines, where most of the statistical accidents occur, there were 119 deaths compared with 162 in 1913.

Each accident is briefly described in Appendix II, Table I, but the following are reported on at greater length. The numbers refer to the numbers in the appendix.

EXPLOSIONS OF FIRE-DAMP.

No. 1.—Assam Railways and Trading Company's Ledo coal mine.

This accident took place in a mine where a highly inclined seam of soft friable coal, 100 feet thick, is being worked on a "chambering" method. The coal is very liable to spontaneous combustion, and, as fires are of frequent occurrence, safety lamps are used. The seam is worked in three stages, commencing from the roof. The finished size of a "chamber" is about 50 feet square by 30 feet high. When these dimensions have been attained, and often sooner on account of incipient fire, the entrances to a "chamber" are sealed off and work commenced on a new "chamber" further back.

In the case under comment a "chamber" had been sealed off and a new "chamber" had been excavated. The barrier of unworked coal between the "chambers" was 15 feet thick.

A miner was engaged in lighting the fuses of dynamite shots in the new "chamber" by means of a lighted rag, when an ignition of gas took place and he sustained burns, from the effects of which he died six days later. It is probable that gas was generated from the coal by distillation in the old "chamber" and that it leaked through the barrier and accumulated in the new "chamber."

The rag had been lighted by the European assistant foreman, who had opened his safety lamp for the purpose, and who claimed to have tested for gas before charging the shotholes. It was considered that he had not tested for gas with sufficient care and he was reprimanded. After the accident shot firing in the district was prohibited.

The practice of opening a safety lamp for the purpose of firing a shot is undesirable. Arrangements have since been made to fire all shots at this company's mines electrically.

FALLS OF ROOF AND SIDES.

No. 13.—Bengal Coal Company, Limited's Dhobidih coal mine.

In the last report attention was drawn to the large number of accidents which occurred while goafing operations, or the getting of pillars, was in progress. This accident, as the result of which six persons were killed, happened while such operations were being carried on.

It is illustrated by plan A. It will be seen that the goaf was traversed by three faults. The stone fell up to one of the faults, the throw of which was 1′ 2″, the "downthrown" side being away from the fall. It had been exposed for about six weeks before the accident and for a length of 40 feet. The two others had also been exposed for considerable lengths of time and the presence of all three must have been known to the management.

The method of goafing here consisted of gradually reducing the pillars, formed in the first workings, until they were totally extracted, timber props being set as the coal was removed.

About 10 A.M. on the morning of the accident, a gang of work persons, seventeen in number, were set to work at a pillar, which was then about 6 feet square, by a sirdar who, after inspection, had declared the place safe. The gang was accompanied by a timberman and a roof-tester who were instructed to set props as required. At noon the overman visited the place. He expressed himself satisfied, and he then left, having told the roof-tester to call the sirdar if the roof began to "weight". He stated that the pillar of coal was then about 4 feet square.

About 4 P.M. the pillar, having been thinned to about three feet square, collapsed, and the miners hurried away to one of the adjoining galleries. After waiting a little time and hearing nothing, the roof-tester and the head of the gang went into the goaf to make an inspection. Upon their return it was decided to attempt to get the fallen coal. Six persons, four men and two women, accordingly went into the goaf, to load up the coal, and shortly afterwards the roof, measuring about 25′ by 16′ × 5′ 3″ thick, fell and killed them outright.

While their bodies were being recovered, a large fall occurred at the middle fault, showing that the first fall had shaken the whole goaf.

The hade of the fault was 50°. On its face was a deposit of mud which had been left behind by the percolation of water. Another side of the fall was fairly regular in outline and was made up of a succession of joints, while the remaining sides exposed a considerable number of joints. All these joints showed water stains on their faces. The stone fell from a horizontal parting in the sandstone and exposed a level roof.

There was no percolation of water through the roof stone at the time of the accident.

With regard to the question of support, according to the statements of witnessses, there were ten or eleven props under the fallen area, but a careful

search under the fallen stone revealed only eight, of which one was broken. The other seven must have been swayed out. Their approximate position is shown on the plan.

The following facts stand out. When the accident occurred these miners had been working for nearly five hours without being overlooked by any official. The sirdar was there at 10 A.M. and the overman at noon. The dangerous occupation of goafing should be, and I am glad to say generally is, supervised by a sirdar, who has no other work to do. A skilled and observant official would have understood the meaning of the collapse of the pillar, he would have withdrawn the work people to a place of safety and not have allowed them to re-enter the goaf.

It is well known that the presence of a fault is liable to affect the soundness of the roof. The presence of this fault, however, was ignored, and only a few props were set to support the roof.

The course of action that should have been followed by the manager, after the presence of the fault had been discovered, was to leave a large pillar of coal under both sides of it. Failing this, he should, as the fault had been exposed over such a length, have set cogs under the upthrow side, as the pillar was being reduced, and on no account should the pillar have been reduced to such small dimensions.

IN SHAFTS.

No. 78.—Cape Copper Company, Limited's Rakha Hills copper mine.

In this case a winding engineman, having received a signal to lower the skip down a shaft, raised it instead up into the sheaves. The bridle nuts were sheared and the skip ran wild down the skipway, with the result that one man was killed and three other persons were injured.

The headframe on top of the shaft was much too low. When the skip was being tipped, there was not more than a foot of rope between the top of the capping and the sheave. With such a small clearance as this, an engineman, even when driving a small self-contained hoist, as was the engine in question, has hardly a second to see that he is driving in the wrong direction. Since the accident a higher frame has been erected. A stop gate at the top of the shaft has also been fixed. This stop gate was being made, when the accident occurred.

Formerly low headframes were the rule at Indian mines, but there has been a marked improvement in this matter during recent years.

No. 84.—Upper India Coal Company's North Singaran coal mine.

Loss of life on this occasion was due to neglect to fence the top of a sinking shaft. The shaft was 50 feet deep, and persons were raised and lowered, and spoil and water were raised, by means of a string of coolies hauling a rope, which passed over a pulley, suspended from a timber cross frame. The shaft was fenced permanently on three sides, but was unfenced on the fourth side. During an interval for a meal in the night shift, one of the coolies, a woman, walked towards the shaft and fell into it. She received injuries from which she died shortly afterwards.

A prosecution was initiated against the manager, as detailed in section IV of this report.

It may be pointed out that all working shafts have to be fitted with fences. Naturally they have to be moved out of the way, when the cage or bucket reaches the top of the shaft, but they must be so arranged that some other contrivance takes their place. In cage pits this is easily done, by means of sliding gates, which the cage itself actuates, but the problem is a little more intricate in the case of sinking or other bucket shafts. A common and satisfactory arrangement for covering the top of sinking shafts in the Indian coalfields is a fenced trolley which runs on rails laid over the top of the shaft. A stop block is provided to prevent the withdrawal of the trolley beyond the limit of the permanent fences on the three other sides of the shaft, and the fence of the trolley becomes the fence on the fourth side. By means of a subsidiary trolley

running on rails laid on the shaft trolley, the kibble or bucket can be transported to and from the dump. The arrangement is illustrated in Plate A.

No. 88.—Barakar Coal Company, Limited's Loyabad coal mine.

This accident occurred while a shaft, which was then 60 feet deep, was being sunk.

The apparatus for covering the top of the shaft consisted of a pair of balanced doors, which, when open, formed a fence on two sides of the shaft, and over which, when closed down on top of the shaft, ran a trolley on rails for receiving the loaded bucket and conveying it to the spoil heap. As a rule it is only when the trolley has to receive the bucket that such doors are closed. They have to be open to allow the rope to travel up and down in the shaft, and for ventilation.

Sinking shaft doors like these conform to the latest and best mining practice, but it must be obvious that, to make the arrangement complete from the point of view of safety, the other two sides of the shaft must be properly fenced, and the trolley line laid at right angles to the doors, when open, as shown in plate B. In the case under review there were no fences on the other two sides of the shaft, and the rails were laid parallel to the doors when open. If, at any time, a trolley was pushed over the shaft when the doors were open, the trolley would fall into the shaft. All that was done to prevent such an occurrence was that a banksman was posted to see that the trolley was not pushed over the shaft until the doors were shut and an order was given that the doors were to be kept shut, except when the rope was travelling. At the inquiry which was held there was evidence that this order was not always obeyed and that the doors had been open when the rope was at rest down the shaft.

For a considerable portion of the working shift the shaft was therefore unfenced on two sides.

Before the apparatus had been in use many days, a trolley, at night, was pushed on to the shaft while the doors were open, fell down the shaft, killed two men at the bottom and injured two others. There were fifteen sinkers in the shaft bottom, and it is remarkable that eleven of the fifteen escaped without injury. The banksman absconded immediately.

The manager stated that the arrangement was temporary and that as soon as his pit top arrangements were more forward, he had intended to lay the rails at right angles to the doors and fence the other two sides of the pit.

In England no sinkers would have consented to work for a single day in a shaft bottom with such an arrangement at the top.

Apart from the trolley, anything else, or anybody, could have fallen down this shaft, when the doors were open.

It was considered that the rule with regard to fencing the tops of shafts had been broken and a prosecution was initiated against the manager, as detailed in section IV of this report.

No. 93.—Bhalgora Coal Company, Limited's Simlabahal coal mine.

This accident was due to the use of machinery of insufficient strength. It occurred at a sinking pit where a scaffold, on which was a pump and three ranges of pipes, with a total estimated weight of 3·14 tons, was suspended directly from the barrel of a single purchase hand winch, which was geared at 24 to 1. The pump, etc., was being gradually lowered down the shaft, additional pipes being fitted at the surface as it descended. To enable a pipe to be correctly fitted, it became necessary to raise the scaffold a few inches, and whilst eight men were exerting power at the winch, both handles broke and the pump, etc., fell to the bottom of the shaft. Two men, who were standing on the scaffold at the time, were killed. Investigation showed that the load was not suspended freely and the pump scaffold was scraping against the walls of the shaft. The friction thus caused must have increased the strain on the winch until collapse occurred.

I consider that the factor of safety of this winch was far too small, and that the agent, under whose instructions it was used, took an unjustifiable risk.

IRRUPTION OF WATER OR FALLING INTO WATER.

No. 107.—Johar Mull's and Sunder Mull's Tadaiya mica mine.

In the early morning of the 5th November, five persons were drowned by an inrush of water. The inrush came from old workings, as shown on plan B, and filled the lower workings of the mine.

There were about sixty persons below ground at the time, twenty-eight of whom were caught by the rushing water, some being totally submerged. All the bodies were recovered on the third day after the accident, having been found at the place indicated on the plan. The place where the water broke in is also shown.

A large quantity of fine mica "deads" were carried into the mine with the water and deposited on the floor of the drifts.

All the evidence at the inquiry went to show that no communication had been made previously and that no work had been done in the drift where the water broke in since the previous June. A close examination failed to disclose any indication of where the ground between the old and the present workings had given way, but the remains of three shot holes, at distances varying from 2 to 4 feet from the actual point of contact, were seen, and these holes had been made from the side of the present workings.

It is difficult to believe that no communication had been made previous to the irruption, because the pressure of water in the old workings had in all probability decreased since the termination of the rains, and if the barrier, assuming there was one, was capable of withstanding the pressure of water in June, it was capable of withstanding it at the time the irruption occurred. The theory, which is quite reasonable, advanced by the inspector who held the inquiry, was that the drift ceased to be worked because a small holing, or merely a large fracture by the last round of shots, had been made into the old workings, that the compact nature of the fine "deads" deposited there was sufficient at the time to resist the pressure of water, but that, as time went on, percolation had worn a path through the "deads" and reduced its resisting power to the point of collapse.

Little or no attempt appears to have been made by the management to locate the position of these old workings, either by a direct search or by boring. The agent admitted that they communicated with the present workings at a point near the mine entrance, shown on the plan, and that, having entered them by way of a strike drift, he had travelled a short distance down a dip road, but had refrained from proceeding further as, he alleged, the sides were bad. There is no reason why the sides should not have been dressed and the exploration of the working completed, when their exact location could have been determined.

HAULAGE.

No. 111.—Equitable Coal Company, Limited's Dishargarh coal mine.

This accident which is illustrated by plan C occurred on a haulage plane (A) which is belowground throughout its length, an electric winding engine being placed in a gallery at (B). The engine hauls the train of tubs up past the points at (C) and the train is then let down by the engine to the shaft. A buffer is placed at (D), to prevent the tubs being hauled into the engine-house. A man, known as the rider, was in charge of the train and rode up and down on it, and the engineman was warned of the arrival of the train at the top of the plane by the rider, who had to jump off the train at (C) and actuate an electric signal (E). The signalling apparatus consisted of two bare wires, extending from the bottom end of the plane to the engine-house, where there was a bell, and the method of signalling was for the rider to grasp the two wires with one hand and with the other saw a copper knife across them to make contact.

There was no light at (C), except the very dim light afforded by a safety lamp carried by the rider.

On the occasion of the accident, the train was being drawn up past the points at (C). The rider, it appears, on this occasion, had not ridden up on the train, but had stationed himself near (C), to await its arrival. Just as it arrived, he knocked over his safety lamp and had to grope in the dark to find the electric wires. Before he could do so, the train collided with the buffer with such force that the rope, which was ¾ inch plough steel, with a breaking strain of 25 tons, broke and the train ran wild. It became derailed at the points and crashed into a prop at (F), which it knocked out. A coolie, who had taken refuge behind the prop, had his leg broken, and died three hours afterwards.

The manager attributed the accident to the man not riding on the train. Why a person when jumping off a train should be less likely to lose his light than a man standing is not understandable. It is unreasonable for a man to have to jump off a train, find the wires only by the aid of a safety lamp and give a signal by the method mentioned, especially in view of the fact that the length of a train is 33 feet 3 inches and the distance between the points and the buffer is only 64 feet.

It transpired at the inquiry that previous collisions between the buffer and the train had occurred.

Since the accident the vicinity of the points has been illuminated by electric light, a man has been stationed to signal and alter the points, which latter are now actuated by a lever. He is sheltered in a manhole cut for the purpose. A proper instrument for connecting the signal wires has been provided. This is how work should be done at all important haulage junctions underground.

No. 115.—Lakorka Coal Company, Limited's Lakorka coal mine.

Considering the large increase in the use of mechanical haulage it is gratifying to note that there has not been a commensurate increase in the number of accidents caused by tubs running uncontrolled from the tops of haulage slopes. The improvement is directly due to the use of arrangements such as runaway switches. During the year the use of such appliances at coal mines became compulsory under Special Rule No. 30.

In the instance under comment a miner, cutting side coal near the face of a main dip gallery, received fatal injuries from tubs which, owing to a missed coupling, ran uncontrolled from the top of a haulage slope. Investigation disclosed the fact that although runaway switches were provided they were not actuated in the approved manner by a lever and wire or rod from the top of the slope. At the time of a previous inspection the manager had been warned both verbally and by letter that it was courting an accident to rely on the hookman's walking down to the switch and opening and shutting it at the proper time. He had, however, failed to profit by the warning, despite the fact that in the Annual Report for 1913 it was necessary to comment adversely on a similar accident at the same mine.

It also transpired at the inquiry that no buffer stop was provided at the foot of the haulage slope. Such an arrangement, although not required by law, is a necessary and usual safeguard for persons working at the lower end of a haulage slope. Its provision would probably have saved life in this case.

No. 120.—Patel and Company's Kusunda coal mine.

This accident occurred on a haulage slope, while a train of tubs was being drawn up. Owing to bad design there was a double curve at the top of the slope, and, as derailments occurred frequently, it had become the practice for an attendant to ride on the front tub and throw his weight on the side of the tub, as it passed round the curve. On this occasion the deceased made some mistake and was crushed to death between the tubs and the side of the road. The management were aware of the practice, which is a dangerous one. It should not be permitted under any circumstances.

Riding, for any purpose, on a train of tubs actuated by ordinary main rope haulage is to be deprecated.

SUNDRIES UNDERGROUND.

No. 133.—Bengal Coal Company, Limited's Sodepur coal mine.

While three men were engaged in repairing a joint in the delivery pipe of an underground electric pump, two of them received a shock that rendered them unconscious. The third called out to a passer-by for assistance and, when he arrived, they both tried to drag the men away from the pipe. In their efforts they too were rendered unconscious. Another passer-by had heard the shout for assistance and, going at once to the place, found the four men lying unconscious on the ground. Fortunately he made no attempt to touch them, and had presence of mind enough to cut out the switch, which was situated some distance away. Then he returned and saw that one man was alive. He drew him away from contact with the other men and went to call for assistance.

The manager and electrical engineer arrived shortly afterwards and found that the bodies of two men were still in contact with the pipe, the third man's body being clear of it. Artificial respiration was tried without success.

It was then found that one of the three cables, which were carrying current to the pump, had fallen off its insulator and come in contact with the earth wire, causing partial fusing of both. These three cables were originally part of a three core unarmoured cable, whose braiding had become defective, causing the wires to be separated. An examination of them by the Inspector of Mines, who inquired into the accident, revealed defective insulation in many places. These cables carried an alternating current of 20 amperes at 500 volts, to supply energy to a 20-H.-P. 3-throw pump.

The fall of the cable was probably due to a thin piece of coal, falling from the weathered side of a pillar of coal and bringing the cable in contact with the earth wire. The current passed along the earth wire to the pump, and back along the pipe to where the men were at work, and went wholly or partially to earth through the bodies of the men. That it did not pass to earth through the suction pipe, which was partly immersed in water, is of considerable electrical interest as showing the high resistance offered by pit water to the passage of an electric current. A similar feature was observed on the occasion of an accident in the Jharia coal-field at the end of 1913.

The proper course of the current was along the earth wire, and if this had been of ample sectional area to carry the current to earth, and so fulfilled its function, the accident would not have happened.

The sectional area of one cable is ·06 sq. inches whereas the area of the earth wire for its major length is only ·006648 or 10 times smaller. The comparative carrying capacity of the earth wire was still further reduced from the fact that it was composed of iron, a material with only one-fifth of the conductivity of copper. It will thus be realised how inadequate the earth wire was and the reason the current sought the passage through the pipe.

The Electrical Engineer to the Company admitted that he made no calculations whatever as to the suitability of the earth wire. He was told by the manager to put one in, and he unstranded an ordinary galvanized signal wire, having 7 strands of 13 S. W. G., and used only one of the wires, although he could have used the complete wire if he had wished, or any other wire for which he cared to requisition.

All the joints were electrically and mechanically sound. The earth plate, buried at the surface to a depth of 4 feet in ordinary ground, was only 2′ × 1′ 8″ in size or 3·3 sq. ft. in area, whereas it should have been about 9 sq. ft. in area and have been placed vertically in the ground at a depth of 6 feet, being well packed on all sides with crushed coke.

The Electric Inspector for the Government of Bengal, who inquired into the accident, came to the conclusion that the fatalities were due to an infringement of rule 53 of the Indian Electricity Rules, 1911, which reads "where the pressure is medium or high, the frame of every generator, stationary motor, and so far as is practicable, portable motor, and, the metallic parts (not intended as conductors) of all transformers and regulating or controlling apparatus belonging to the supply, shall be connected with earth by two separate and distinct earth connections."

The motor was connected with earth by one connection only and that was made of No. 13 S. W. G. wire for a length of 854 and of No. 10 S. W. G. wire for the remaining length of 227 feet. This wire was connected with the armouring in the shaft, from the surface end of which a short thick wire led to a galvanized iron sheet $\frac{1}{8}''$ thick $\times 2' \times 1'$ 8″ buried 4 feet in ordinary earth.

A good and cheap form of earth wire, for use at a colliery, is an old winding or hauling rope.

NON-STATISTICAL.

No. 29.—Bengal Coal Company, Limited's Murulidih coal mine.

The fatality was due to the thoughtless and improperly supervised manner in which hand shunting is frequently carried out on colliery sidings. The deceased was a girl of eleven years of age. She was underneath a wagon assisting to push it along a siding, and, becoming alarmed by its increasing speed, attempted to get out from underneath by passing between the front and rear wheels. She failed to get clear and was run over, receiving injuries from the effects of which she died a few hours later.

Such accidents are clearly preventable. Hand-shunting should only be carried on under the direct supervision of a responsible male person, who should either himself control the brake or depute a competent person to do so. Children should not be allowed to assist, and pushing should only be done from behind. Only one wagon at a time should be moved.

Section IV.—Prosecutions and additions to the Act.

PROSECUTIONS.

Judgment was given in the following prosecutions during the year. Unless otherwise stated 'rule' means a rule under Notification No. 864-68-20, dated 10th March 1904, being rules for the working of coal mines.

In the last annual report descriptions were given of accidents by irruption of water at the Indian Collieries Syndicate, Limited's Jamadoba coal mine and at the Bengal Bhatdih Coal Company, Limited's Bhatdih coal mine. The manager and a sirdar in each case were proceeded against under rule 5, read with section 22 (*1*) (*e*), for not having withdrawn miners from a place found to be dangerous. The cases were dismissed, as the complainant, who had left the country, had not been examined on oath and it was not possible to lay a fresh complaint in the time required by section 24.

In the case of the fatal accident at the Equitable Coal Company, Limited's Chowrasi coal mine, described in the last annual report, the manager was prosecuted under rule 8 of Notification No. 11793-103, dated the 30th December 1908, read with section 22 (*2*) (*b*), for not despatching within twenty-four hours to the Magistrate of the district, for transmission to the Chief Inspector of Mines a notice of the accident. He pleaded guilty and was fined Rs. 150.

The managing owner of Sheodan Mul Ram Chandra Marwari's Dhasar coal mine was prosecuted under rule 19, section 13 (*1*), and rule 47 of Notification No. 2968-82, dated the 21st April 1906, and rule 3 of Notification No. 11793-103, dated 30th December 1908, read with section 22(*3*)(*e*), for having inclines unfenced, for working the mine without a qualified manager and for not reporting the reopening of the mine. He pleaded guilty and was fined Rs. 50: in default two weeks' simple imprisonment.

The manager of the Netra Manganese Company, Limited's Netra manganese mine was prosecuted under rules 2, 3 and 5 of Notification No. 6436-152, dated the 2nd September 1911, read with section 22 (*3*) (*e*), for not keeping an inspection book, for not keeping a daily report book, and for not keeping a copy of the Act and rules. He pleaded guilty and was fined Rs. 25.

The manager of Messrs. Jessop & Company's Gowangota and Bhandabori manganese mines was prosecuted under rules 3, 5 and 12 of Notification No.

6436-152, dated the 2nd September 1911, read with section 22 (*3*) (*e*) for not keeping a daily report book, for not keeping a copy of the Act and rules and for not arranging an efficient system of signalling when blasting operations were being carried on. He pleaded guilty and was fined Rs. 150.

The manager of the Netra Manganese Company, Limited's Malhurki manganese mine was prosecuted under rules 3, 9 and 12 of Notification No. 6436-152, dated the 2nd September 1911, read with section 22 (3) (*e*), for not keeping up a daily report book, for not providing a box to carry explosives to the mine, and for not arranging an efficient system of signalling when blasting operations were being carried on. He was acquitted on the first count, and found guilty on the other two and fined Rs. 50.

Arising out of an accident at the Upper India Coal Company's North Singaran coal mine, whereby a woman fell down a sinking shaft which was only fenced on three sides, as described in section III of this report, the manager, who was also part owner, was proceeded against under rule 19, read with section 22 (*1*) (*e*) for not properly fencing the shaft. He was also proceeded against under section 13 (*1*) for managing the mine without being qualified to do so. He pleaded that he could not have worked the shaft if it had been properly fenced. The Inspector of Mines, however, testified that many persons work their shaft with proper fences. He was found guilty on both counts and fined Rs. 50: in default two weeks' simple imprisonment.

The owner of the New Baraboni Coal Company's New Baraboni coal mine was prosecuted under section 13 (*1*), read with section 22 (*3*) (*e*) for working his mine without a qualified manager. He was fined Rs. 150: in default rigorous imprisonment for six weeks.

An accident occurred at a mica mine, named Lariatand, whereby two women were killed by a fall of earth. Nine joint-owners were prosecuted under sections 16 and 17, read with sections 22 (*3*) (*e*) and 22(*2*)(*b*) for failure to report the opening of the mine and for failure to give the prescribed notice of an accident. The case against eight of them was dismissed but the ninth was found guilty and was fined Rs. 100 (Rs. 50 on each count): in default one month's simple imprisonment.

The owner and agent of the Sudamdih Coal Company, Limited, were prosecuted under rule 5 of Notification No. 11793-103, dated the 30th December 1908, read with section 22 (*3*) (*e*) for working within 50 yards of a railway without giving 60 days' notice of their intention to do so. The following extracts from the judgment in the case against the agent are given:—

"The first point raised by the accused is that the case is barred by limitation under section 24 of the Indian Mines Act. No Court can take cognizance of a case more than six months after the date of the alleged offence. It is argued that the offence does not consist of working within 50 yards of the railway which would be a continuing offence but only in the first definite extension of work within this 50 yards.

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The plea of the accused, therefore, amounts to this 'If I can extend the operations within the prohibited area and can keep this fact dark for six months I cannot be prosecuted, even if I go on working within the prohibited area'.

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It is clear from rule 5 that its object is to prevent railways being undermined without due notice being given and both in common sense and in law, the limitation section of the Act will only apply if the Chief Inspector of Mines takes no action within six months of the offence being continued. If the accused's plea were valid, it would reduce the regulations which protect the railway to a mere nullity.

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The second point raised by the defence is as to the meaning of the word railway—he says that as "railway" is not defined either in the General Clause Act or the Indian Mines Act, it must be taken to mean the railway line itself and that he has not extended his operations within 50 yards of the railway line without notice. On this it is sufficient to point out that rule 5 refers to any railway subject to the provisions of the Indian Railways Act, 1890. In that Act railway is defined to include all land within the fences or other boundary marks, so that is obviously the meaning to be attached to the word in the rule."

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The accused was fined Rs. 200 : in default, two months' simple imprisonment.

The case against the owner was withdrawn.

Arising out of a fatal accident at the Barakar Coal Company, Limited's Loyabad coal mine by which two persons were killed by a trolley and bucket falling down a shaft as described in section III of this report, the manager was proceeded against under rule 19 read with sections 22(1)(e) and 22(3)(e), for not having the top of the pit properly fenced. The judgment was as follows :—

The accused was summoned for breach of rule 19 under the Indian Mines Act—this rule is as follows :—Every side entrance to a mine from the surface and the top, and all entrances between the top and the bottom, including the sump (if any), of every working, ventilating or pumping shaft shall be properly fenced : but this shall not be taken to forbid the temporary removal of the fence for the purpose of repairs or other operations if proper precautions are used. The facts are not in dispute—an accident occurred at the colliery of which accused is manager. On the night of March 2nd, a trolley fell down a sinking pit and two men were killed and two were injured. The top of this pit was protected by doors which opened upwards—when open, the doors themselves frame a fence on two sides, but leave the other two sides unprotected. Now at the time of the accident, these doors were parallel with the tram lines on which the trolley ran. If the doors are at right angles to the line, they are an automatic carrier which will stop the trolley. If they are parallel the only sort of fence possible is a movable fence, for as the Chief Inspector of Mines admits, it is necessary to get the trolley right over the top of the pit, so such a fence must be moved when the time comes for the trolley to go over the pit.

Now it is obvious to anybody and it is admitted by Mr. Lascelles, a defence witness, that it is preferable to have the doors at right angles to the line. It is in evidence from the prosecution witness and from one defence witness corroborating the accused's statement that the arrangement was purely temporary—the trolley had only a few days before been introduced and it was apparently not possible to get the lines at right angles to the doors. The only question I have to decide is whether proper precautions were taken. Now Mr. Turnbull, the Junior Inspector of Mines, seems to me to base the prosecution case on the absence of a movable fence—whereas Mr. Simpson, the Chief Inspector of Mines, says that the arrangement of the doors was "all right but its manner of application was wrong". The accused says (and he is supported by two witnesses) that the precaution he took was to order the man in charge of the doors not to let the trolley come near till the doors were closed. Mr. Lascelles is of opinion that this is safer than a movable fence ; a movable fence he says, must be light. If it is light, it is no adequate protection against a heavy trolley pushed by several coolies, but on the other hand it gives a false sense of security. This seems to me to be sound reasoning. There is nothing on the record to justify me in holding that the accused ought to have suspended all operations until the tram lines were brought to right angles with the doors. Till this was done, the accused appears to me to have taken reasonable precautions and I do not consider that section 14 of the Indian Mines Act would make it right to convict him for the negligence of the man in charge of the doors to whom proper instructions had been given.

Arising out of an accident at the New Birbhum Coal Company, Limited's Borrea coal mine, whereby a woman fell into water in an abandoned coal shaft

the manager was proceeded against under rule 19 read with section 22(3)(e) for not having the shaft properly fenced. He pleaded that the shaft had been fenced but that the villagers had broken it down. He was found guilty and was fined Rs. 50 : in default one month's simple imprisonment.

The owners (three) of the North Jharia Coal Syndicates' Dhansar coal mine were prosecuted under section 13(1), and rules 4 and 9, read with section 22 (3)(e) for working the mine without a qualified manager, for not keeping a daily report book and for not keeping a plan of the mine. They were found guilty and fined Rs. 30 each : in default one week's simple imprisonment.

The owner of J. Boisogomoff and Company's Radhaballavpur coal mine was prosecuted under section 13(1) and rules 1, 4 and 7, read with section 22(3)(e), for working his mine without a qualified manager, for working his mine without a second outlet, for not keeping a daily report book and for not fencing disused galleries. He pleaded guilty and was fined Rs. 200: in default two months' rigorous imprisonment.

Arising out of an accident by which a woman was killed by falling down an abandoned coal shaft, on the Searsole Raj Estate, the owner of the estate was proceeded against under rule 19 read with section 22(1)(e) and 22(3)(e), for not fencing the top of the shaft, and was fined Rs. 50: in default simple imprisonment for one month.

The owners (four) of the Majhlitand Coal Company's Majhlitand coal mine were prosecuted under section 13(1) read with section 22(3)(e), for working the mine without a properly qualified manager. They pleaded guilty and were fined Rs. 7-8-0 each.

The owner of Charu Chandra Mitra's Ranidih coal mine was prosecuted under section 13(1), read with section 22(3)(e), for working the mine without a qualified manager. He had been repeatedly warned. He was found guilty and fined Rs. 100.

The owner of Chatra Naik's Sakua mica mine was prosecuted under rules 1 and 4 of Notification No. 11793-103, dated the 30th December 1908, read with sections 22(2)(b) and 22(3)(e) for failing to submit an annual return and for not giving notice of the change of ownership of the mine. He pleaded guilty and was fined Rs. 20 : in default two months' rigorous imprisonment.

The owner of Bundhu Singh's Sabarabia mica mine was prosecuted under section 16 and rule 1 of Notification No. 11793-103, dated the 30th December 1908, read with sections 22(3)(e) and 22(2)(b) for not giving notice of the opening of the mine and for failing to submit an annual return. He pleaded guilty and was fined Rs. 20: in default two months' rigorous imprisonment.

The managing owner of R. N. Bagchi and Bros.' Dobari coal mine was prosecuted under rule 1 of Notification No.11793-103, dated 30th December 1908, and under rule 45 of Notification No. 2968-82, dated the 21st April 1906, read with sections 22(2)(c) and 22(3)(e) for submitting a false return of output and working a mine, having an output which required a manager holding a first class certificate, with a manager holding only a second class certificate. The first complaint was held to be time barred under section 24, but to the second he pleaded guilty and was fined Rs. 150. The manager was prosecuted under rule 45, as above, read with section 22(3)(e), for managing the mine, without being qualified to do so. He also pleaded guilty and was fined Rs. 75.

The owner and manager of the Royal Bengal Coal Company's Kusumkanali coal mine were prosecuted under rule 9, read with section 22(2)(b), for not keeping a plan showing the workings up to a date not more than six months previously. They pleaded guilty and were each fined Rs. 20: in default ten days' simple imprisonment.

The owner, agent and manager of the Shergarh Coal Company, Limited's Burman Baraboni coal mine were prosecuted under rules 1, 7 and 19, read with section 22 (3) (e), for not arranging for apparatus for raising persons at the second outlet of the mine, for not fencing unused galleries and for not properly fencing the top of a sinking shaft. The manager was found guilty and was fined Rs. 200. In the case of the owner and agent, the Magistrate was of opinion that inadequate funds were provided and that the accused were

equally liable with the manager. They were each fined Rs. 200: in default simple imprisonment for one month.

The owner and agent then appealed to the High Court on the grounds (1) that the manager having been fined, they also could not be held liable, and (2) that a corporate body cannot be convicted of a criminal offence. The following extracts from the High Court judgment are given:—

"The Shergarh Coal Company are the owners and Ramjidas is the agent of a coal mine in mouza Baraboni in the district of Burdwan.

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Section 14 of Act VIII of 1901, however, distinctly states that the owner, agent and the manager of every mine shall be responsible that all operations carried on in connection therewith are conducted in accordance with the provisions and rules of this Act and that in the event of any contravention of such provisions the owner, agent and manager shall each be liable to be found guilty of an offence against this Act unless he proves that he had taken all reasonable means to prevent such contravention. There is no justification for the view that the punishment of the manager *ipso facto* absolves the owners and the agent from punishment for a contravention of rules 1, 7 and 19.

The next point is whether a corporate body such as a company can be found guilty and sentenced for an offence under the Act. Having regard to the definition of person in sections 3 and 4 of the General Clauses Act (Act X of 1897), it is clear that a company can be punished for an offence under the Mines Act, unless the conviction or sentence is repugnant to the subject or context of the Act. Here the very object of the Act seems to be that a corporate body, such as a company, should be liable for contravening its provisions and the conviction is therefore correct. But the sentence of imprisonment in default is one which cannot be enforced against the company and is repugnant to the context of the Act. This part of the sentence, therefore, must be set aside. A similar view was taken in the case of Hawke *versus* Hilton and Company, Limited, in 25 Times Law Reports, p. 474. In that case it was sought to convict the company under section 4, George IV, Chapter 60, section 41 as rogue and vagabond for keeping a lottery in contravention of the terms of the Lotteries Act and it was held by Darling and Jelf, JJ., that although the company was not a person for the purpose of punishment with imprisonment as rogue and vagabond under section 41 of the Lotteries Act, yet it could be punished under the first part of the same section by a fine of £50 for each offence. There are also other authorities in the English Courts for holding that a company is liable to fine. In the present case the sentence of imprisonment being set aside, the Magistrate must recover the fine by distress or other legal procedure.

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The result is that the conviction and sentence against the agent Ramjidas will be maintained and that so far as the Shergarh Coal Company is concerned, the sentence will be altered into one of a fine of Rs. 200 only."

The owners (three) of the Central Tentulia Coal Company's Central Tentulia coal mine were prosecuted under section 13(*1*) and rules 3 and 7, read with section 22 (*3*) (*e*), for working the mine without a qualified manager, for not supporting the roof and sides and for not fencing disused galleries. They pleaded guilty and were fined Rs. 100 each : in default fourteen days' simple imprisonment.

The manager of the Shergarh Coal Company, Limited's Burman Baraboni coal mine was prosecuted under rule 6, read with section 22 (*3*) (*e*), for omitting to keep boreholes in advance of the workings when approaching a place likely to contain a dangerous accumulation of water. He pleaded guilty and was fined Rs. 20 : in default simple imprisonment for two weeks.

The owner of the Panjab Bengal Coal Company's Barora coal mine was prosecuted under rule 12 read with section 22 (*2*) (*b*), for failing to submit a copy of the plan of his abandoned mine. He pleaded guilty and was fined Rs. 75 : in default fourteen days' simple imprisonment.

The following cases were instituted under rule 1 of Notification No. 11793-103, dated the 30th December 1908, read with section 22 (*2*) (*b*) for failing to submit an annual return on or before the 1st February :—

The owner of Jai Prokash Narayan Singh's Tikopara mica mine. Fined Rs. 10 : in default simple imprisonment for one day.

The owner (and manager) of Mithu Sonar's Nayasarai coal mine. Fined Rs. 5 : in default simple imprisonment for one week.

The owners of the Joogidih Colliery Company's Joogidih coal mine. Fined Rs. 20 each.

The owner and manager of the Tikait Sahib of Ganwan's Sallaya mica mine. Fined 8 annas each.

The owner and agent of D. C. Biswas & Company's Paira mica mine. Fined Rs. 50 : in default simple imprisonment for one month. (The agent absconded).

The owner of H. Ahmed Brother's Muraidih coal mine. (Absconded).

The agent of Roy, Dutt & Company's Kajora coal mine was prosecuted under rule 1 of Notification No. 11793-103, dated the 30th December 1908, read with section 22(*2*)(*c*) for submitting an inaccurate annual return. He was fined Rs. 100 : in default rigorous imprisonment for one month.

At the instance of the manager of the Barakar Coal Company, Limited's Kantapahari coal mine, a winding engine-man was prosecuted for a violation of rules 5 and 62, made under section 21, read with section 22 (*3*) (*e*). He, however, absconded.

The following prosecutions were instituted under the Indian Penal Code :—

Arising out of the fatal accident at the Barakar Coal Company, Limited's Loyabad coal mine, in connection with which a prosecution was taken under the Indian Mines Act against the manager, as detailed on page 14, the head banksman was prosecuted under section 287, as he ordered the trolley to be pushed over the top of the shaft when the doors were open. He, however, absconded.

Arising out of a fatal accident at the Equitable Coal Company, Limited's Hariladih coal mine, described on page 50 of the last report, the manager was prosecuted under section 304 (*a*) in that he caused the deaths of two persons by doing a rash and negligent act not amounting to homicide, and under section 287 in that he did, with machinery, an act so rashly and negligently as to endanger human life. The following extracts from the judgment are given :—

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"Something gave way, it is not known exactly what and two of these men were killed. These men were sent down to the buntons under the general instructions of the accused. The accused admits this and says it was impossible to raise the pipes without doing so. The Officiating Chief Inspector of Mines gives it as his opinion that the method employed was highly dangerous, considering that a considerable length of pipe had to be guided up through the buntons and says that there would have been considerably less danger, if each section of the pipe had been raised separately. On the other hand Mr. Owen, a prosecution witness says that in his opinion considering the experience of the accused and the peculiarity of the operation there was no impropriety in having two men down the shaft. Mr. Owen and the Officiating Chief Inspector of Mines have about equal experience (though of a slightly different kind) in such matters, and it is difficult to say that the opinion of either is more expert than the others. Mr. Owen also says that he has known several cases in which pipes have been renewed under similar conditions and that this is the first accident that has come to his notice. He does not think there was any more

probability of danger in this case than in any other shaft work—and he also says that the degree of danger arises with the importance of the man in charge at the pit top.

I think it is clear from this that no charge under section 304-(*a*) will stand. It has been held that in that section death must be the direct result of the accused's rash and negligent act without the intervention of another's negligence.

The accused's act must be "the *causa causans*" and in this case it obviously was not.

Accused as charged section 287. It was argued (and as I think rightly) that the section is not applicable, this accident was not due to any defect in, or negligence in the use of machinery. It was suggested by the prosecution that as soon as the pipes were attached to the hauling machinery, they became part of the machinery. But this is a standard interpretation, entirely opposed to common sense and with no legal authority either.

For these reasons I direct that the accused be discharged section 253."

Three permits granted to managers of small mines, and one authorization to manage more than one mine, were cancelled during the year on account of mismanagement, disclosed by inspection.

Section V.—General Remarks.

HEALTH AND SANITATION.

The year passed without any very serious outbreak of cholera in the coalfields of Bihar and Orissa. The disease, however, was not entirely absent. From the Jharia coalfield 167 cases and 64 deaths were reported, the deaths being spread over twenty-three collieries. From the Raniganj field 109 cases and 60 deaths were reported. Of these deaths twenty-eight took place at one group of mines, the remaining deaths being spread over ten other collieries. Small-pox was more than usually prevalent. Four hundred and three cases and 73 deaths being reported from Jharia collieries and 102 cases and 17 deaths from Raniganj collieries. There was also an outbreak of small-pox in the Jharia bazar towards the end of the year.

Outside these coalfields there were 21 cases and 12 deaths from cholera at a manganese mine in Nagpur district. Cases occurred also at the Katni limestone mines. There were outbreaks of small-pox at Mohpani and Chandametta collieries, and at manganese mines in Balaghat and Nagpur districts. Epidemic pneumonia was reported from manganese mines in Bhandara district, and from Shivrajpur manganese mine in Bombay. With the exception of the last, all the above are in the Central Provinces.

The Jharia Sanitation Committee held two meetings during the year and dealt with various matters. In November this Committee, which has done good work in the coalfield for several years, was dissolved and a Board of Health was formed under the Bengal Mining Settlements Act, 1912. The extent of the settlement is shown on plan D. The Board is constituted as follows:—Official Members (1) The Deputy Commissioner of Manbhum (Chairman), the Chief Inspector of Mines in India, the Sub-Divisional Officer of Dhanbad, and the Civil Surgeon of Manbhum. Non-official members, three persons nominated by owners of mines and one person nominated by rent, royalty and fine receivers. The non-official members were Messrs. R. G. M. Bathgate, H. M. Bull, Dr. F. T. Simpson and Mr. Monmatha Nath Ray. Three meetings were held.

The total rainfall in the Jharia coalfield was 44·33 inches; in the Giridih coalfield it was 42·55 inches; and in the Raniganj coalfield it was 46·06 inches. These figures for 1913 were 71·51, 61·85 and 78·39 inches, respectively.

SIBPUR COLLEGE MINING DEPARTMENT.

The Principal has reported that at the commencement of the sessions there were ten students, of whom three were studying in the fourth year. Of the

third-year men, four passed and obtained promotion to the fourth-year class. One failed and is repeating the third-year course. The three fourth-year candidates passed the Diploma examination. Employment was secured for them and they are now at work.

Sanction has been sought and obtained to the opening of a special three-year course, leading direct to the mining diploma examination. Admissions to this are made in January (a time of year that is more convenient to those from European schools), and students are able to obtain the diploma without going through the sub-overseer classes, though being taught with them and reaching an identical standard in mathematics, science, drawing and workshops, before taking up the special mining subjects in the last two years. Indian students can still join in June and pass through the sub-overseer classes, or take a transfer to the new three-year course in the following January.

The first year of this new three-year course is common to students taking mining and electrical and mechanical engineering, in neither of which professions is a sub-overseer certificate of any special value. It is hoped that the admission of Europeans and Indians to the mining class from other parts of India may be considerably facilitated by this change.

It should be recorded that, of seven passes in the second class mine managers' certificates examination held in March 1915 at Dhanbad, the first four were students or ex-students of this college. Hemanta Kumar Nag who stood first, was a student at the college at the time he appeared at the examination.

A special class for mine managers' certificates was opened in February, and attracted three students. This number should also be improved upon next year, provided the classes are continued.

An innovation was made this year in the admission of special students to study mine surveying at the college camp which was pitched at Bhaga. Ten such students were admitted, seven of whom had read in the engineer department of the Civil Engineering College, five having failed at the intermediate examination in Engineering of the Calcutta University, held at the end of the second-year class, while one had completed the third-year course of that department and one had failed at the B. E. examination. One of the others was a European and two were admitted from the mining districts. All these students have obtained suitable employment. It is expected that there will be a greater number seeking admission this year, as these classes could not be advertised sufficiently last year, on account of the intervention of the long vacation.

The students have been called upon this year to do analyses of coal, etc., for several firms and for the Howrah Municipality. This is due to the absence of certain analysts from Calcutta on account of the war. The students took a great interest in this work and several contracts were made on their results. Work of this kind, which entails a sense of responsibility, always proves of greater benefit than hours of instruction and it is hoped and expected, therefore, that such work will continue.

Mr. H. C. Read officiated as Professor of Mining during a portion of the year under review, *vice* Mr. Roberton who was granted furlough.

It should be mentioned that arrangements have been made to enable students to visit a colliery soon after joining the mining classes, so as to enable them to acquire the earliest possible idea of what mines are like and thus to study the subject with greater understanding and profit. The majority of the Bengali students have never seen a mine and in some cases have never seen a hill or a rock.

MINING EDUCATION IN THE BENGAL AND BIHAR COAL-FIELDS.

Two meetings of the Mining Educational Advisory Board were held during the year.

Lecturers for the session 1914-15 were appointed as follows:—

Jharia Centre—Mr. E. D. James, Sijua Centre—Mr. J. R. Harrison, Charanpur Centre—Mr. T. Gibson, Dishargarh Centre—Mr. W. R. Lascelles, Raniganj Centre—Mr. J. Wilson, B.Sc.

The lecturers for the session 1912-13 reported that there were 240 names on the register. This is one hundred and twenty less than in the previous year. The average number of attendances at the various centres was 15·48, in other words an average number of seventy-seven students received instruction each week.

The sessional examination was held simultaneously at the different centres on the 1st June 1914, the examiners being Messrs. G. C. Leach and H. C. Read. Twenty-six students presented themselves for examination, of whom 16 (7 Europeans and 9 Indians) were successful in passing. The highest marks were gained by Mr. B. Adamson, Babu Hrishikesh Ghosh being only one mark behind.

The examiners reported as follows :—

" We have read the reports of previous examinations and we consider that on the whole there is some improvement in the quality of the work shown. The defects of former years are, however, still apparent, and there was evidence of a tendency to rely more on book knowledge than on practical observation. Throughout the papers there is a distinct lack of close study, which could be remedied in private by painstaking students. The sketching has undoubtedly suffered through the absence of diagrams, the provision of which was a feature of other years. In many papers a restricted education is painfully evident."

In addition to the English lectures, Babu Hemanta Kumar Sen, an assistant in the Sibpur College, mining department, was appointed to deliver a course of lectures on elementary coal mining in Bengali at six selected centres.

MINING AND GEOLOGICAL INSTITUTE OF INDIA.

The total membership of the Institute at the end of the year, including subscribers, was 291. Three general meetings were held during the year. In addition to the above meetings, branch meetings were held in the Raniganj and Jharia coalfields at which discussions took place. The Government prize for the best paper during the year was divided equally between Dr. A. W. G. Bleeck and Mr. T. S. Gibson for their respective papers on " Contributory Notes to the Economic Geology and the results of petroleum borings of the Minbu Oilfield " and " Proposals for shaft-bottom arrangements and methods of working in deep seams." Of the three prizes of the value of Rs. 100 each, offered by the institute on the following subjects—

(*a*) Laying out a pit-bottom for an Indian Colliery ;

(*b*) Housing and sanitation of mine labour in India and ;

(*c*) Application of the various systems of haulage to Indian mines,

papers dealing with the subject (*a*) have been received and the prize was awarded to Mr. R. H. Husband. Three prizes are again offered this year for the best paper on the last two subjects and on " Metalliferous Mining or Geology connected therewith."

ASSOCIATION OF COLLIERY MANAGERS IN INDIA.

At the commencement of the year, an important body was brought into existence by the founding of an association, with the above title.

The Association consists of a president, two vice-presidents, councillors, an honorary treasurer, an honorary secretary and members. The membership at the end of the year was 162. Amongst the objects for which the Association is established, as copied from the memorandum of association, are—(*a*) protecting their interests, (*b*) watching the progress of legislation as affecting the profession of mining engineers, (*c*) communicating collective views of the profession when necessary, (*d*) for the better control of labour, (*e*) protecting individuals who, in the opinion of the council of the association, are worthy of such protection, and (*f*) to promote the science of mining, but not in any way to interfere with the sphere of usefulness of any other scientific institution, subject to the discretion of the council.

Mr. T. Walsh, the manager of Bhulanbarari colliery, was the first president.

BOARD OF EXAMINERS FOR COAL MINE MANAGERS' CERTIFICATES.

The two non-official members of the Board were the same as that of last year, *viz.*, Messrs. S. Heslop and R. J. Browne.

Mr. R. J. Browne's term of office expired on the 5th May 1914. He was re-elected for a further term of office with effect from that date.

During the year seven meetings were held. There were twenty-two applicants for first class Indian certificates of competency, in lieu of British certificates, and they were all granted certificates.

One first and two second class certificates of service were granted.

An examination for certificates of competency was held at Dhanbad in the East Indian Railway Institute on the 25th, 26th and 27th February 1914, at which forty-two candidates sat for first class certificates and sixty-two for second class certificates. Competency certificates were granted to eight first class, and seventeen second class, candidates.

Of seven candidates who failed to obtain first class certificates, but who were recommended by the examiners for the grant of second class certificates of competency, four already held such certificates. Second class certificates were accordingly granted to three of the above mentioned candidates.

The examiners were Messrs. G. F. Scott, Glen George and G. C. Leach (Official Examiner and Secretary).

MINING BOARDS IN BENGAL AND BIHAR.

The Bengal Mining Board held four meetings during the year when the following were considered :—

(1) Rules for the close supervision over colliery magazines with a view to prevent the theft of explosives from them ; (2) the necessity for the constitution of a Mines Board of Health under section 3, Bengal Act II of 1912, for the subdivision of Asansol ; and (3) the draft of proposed revised forms of annual returns for coal mines and mines other than coal.

The non-official members of the Board were Messrs. W. Graham and Glen George.

The Bihar and Orissa Mining Board held one meeting during the year 1914, when the following were considered (1) the draft rules under the Jharia Water-Supply Act, and (2) the revision of the forms for the submission of annual returns by mine owners under the Indian Mines Act, 1901.

The non-official members were Messrs. T. H. Ward and R. G. M. Bathgate.

OFFICIAL DUTIES IN 1914.

Mr. G. F. Adams was Chief Inspector of Mines in India. He was granted seven months' combined leave from the 13th April. Subsequently an extension of one month and eleven days was granted to him. During the above period of leave he was on deputation in England for five days, to visit salt mines, and for two weeks, in connection with an inquiry into mining education. He resumed charge of the office of Chief Inspector on the 6th December.

Mr. R. R. Simpson was Inspector of Mines, No. 1 Circle. From the 13th April to the 5th December, he officiated as Chief Inspector, and from the 5th October to the 5th December, he had charge of No. 1 Circle in addition to his duties as Officiating Chief Inspector.

Mr. G. C. Leach was Inspector of Mines, No. 2 Circle. From the 13th April 1914 until the end of the year he had charge of No. 3 Circle in addition to his own duties.

Mr. C. J. E. David was Inspector of Mines, No. 3 Circle. From the 13th April 1914 till the 4th October 1914, he had charge of No. 1 Circle. He was granted six months' combined leave from the 5th October.

Mr. J. J. Turnbull was Junior Inspector of Mines. He worked under the Inspectors as follows :—From the beginning of the year to the 12th April under the Inspector for No. 1 Circle, from the 13th April till the 4th October under the Inspector for Nos. 2 and 3 Circles, from the 5th October to the 9th December under the Inspector of No. 1 Circle and from the 10th December to the end of the year again under the Inspector for Nos. 2 and 3 Circles.

I have the honour to be,

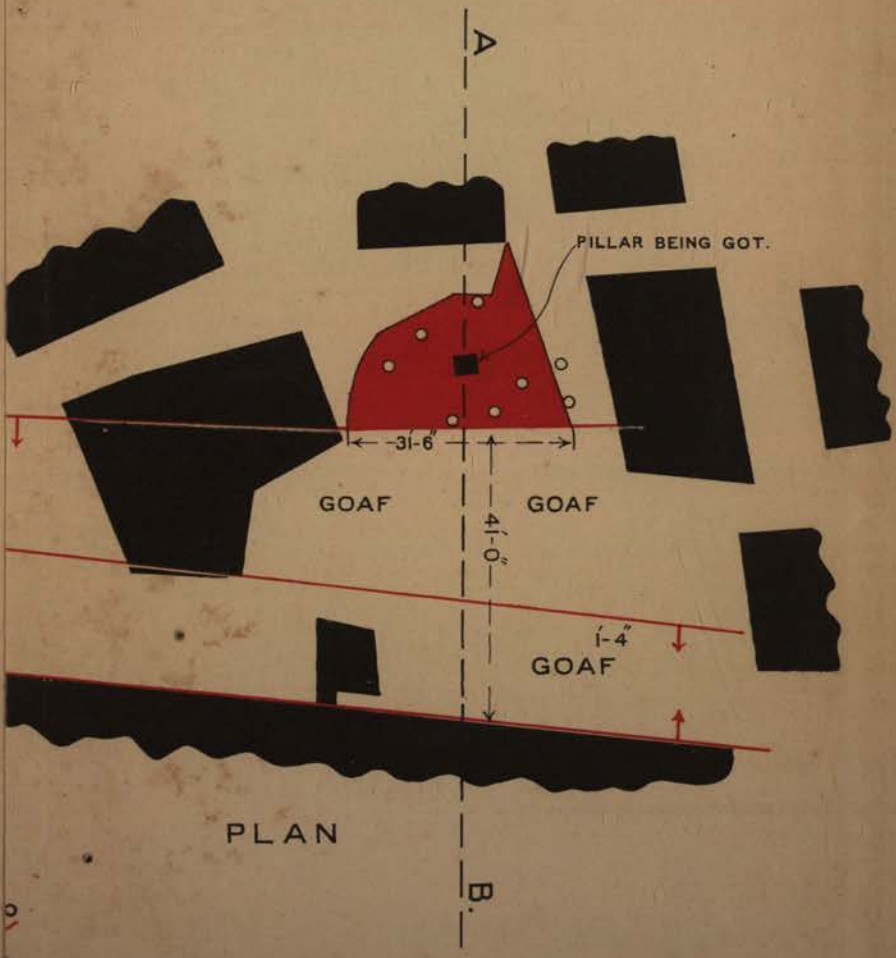
SIR,

Your most obedient servant,

G. F. ADAMS,

Chief Inspector of Mines in India.

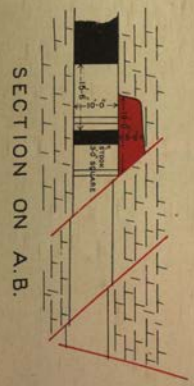
LLUSTRATING REPORT ON
CIDENT BY FALL OF ROOF
AT
OAL CO., LTD'S, DHOBIDIH MINE
Scale 1 Inch-20 Feet.

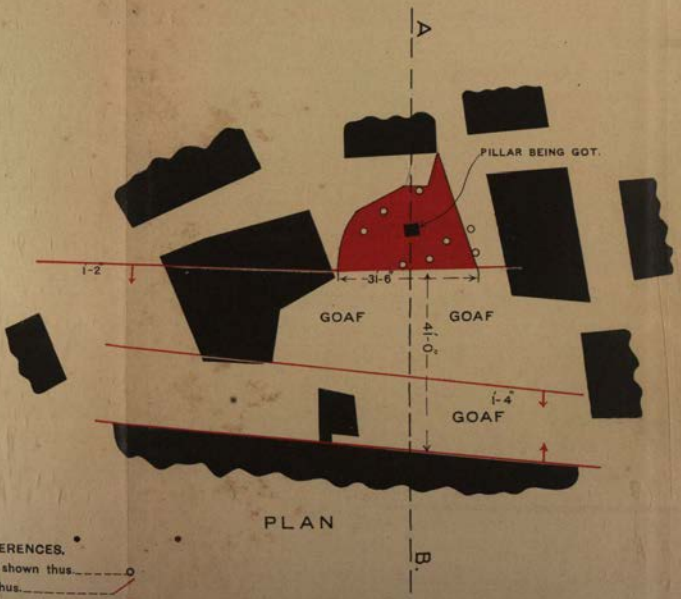


PLAN

PLAN ILLUSTRATING REPORT ON
FATAL ACCIDENT BY FALL OF ROOF
AT
THE BENGAL COAL Co., LTD'S, DHOBIDIH MINE

Scale 1 Inch-20 Feet.





REFERENCES.

Timber props shown thus.....o

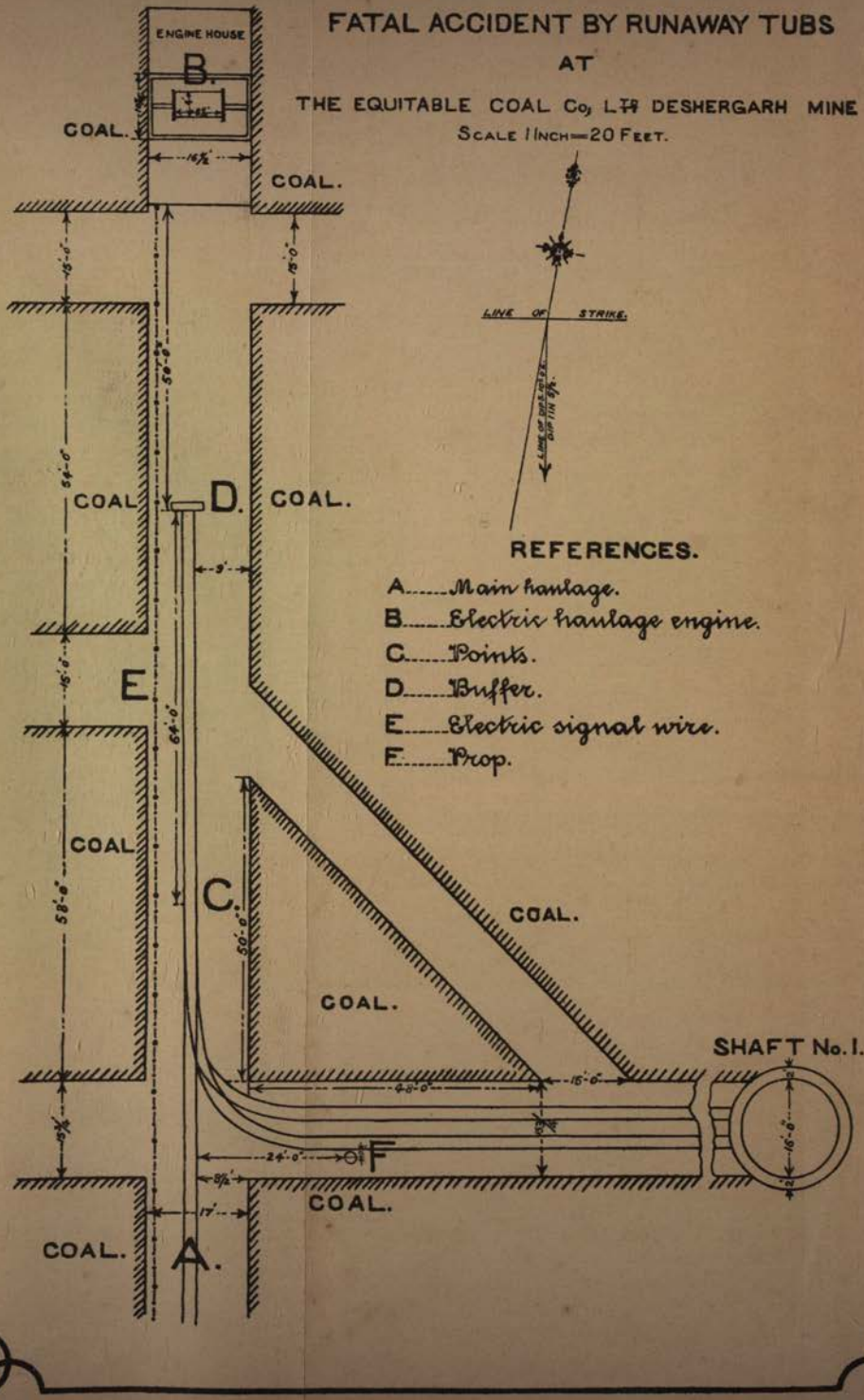
Fault shown thus.....

Roof which fell shown thus.....

PLAN C.

PLAN ILLUSTRATING REPORT ON FATAL ACCIDENT BY RUNAWAY TUBS AT THE EQUITABLE COAL Co, LTD DESHERGARH MINE

SCALE 1 INCH = 20 FEET.



REFERENCES.

A.....Main haulage.
B.....Electric haulage engine.
C.....Points.
D.....Buffer.
E.....Electric signal wire.
F.....Prop.

MAP SHOWING JHARIA MINING SETTLEMENT.

Scale 1 Inch = 2 Miles.

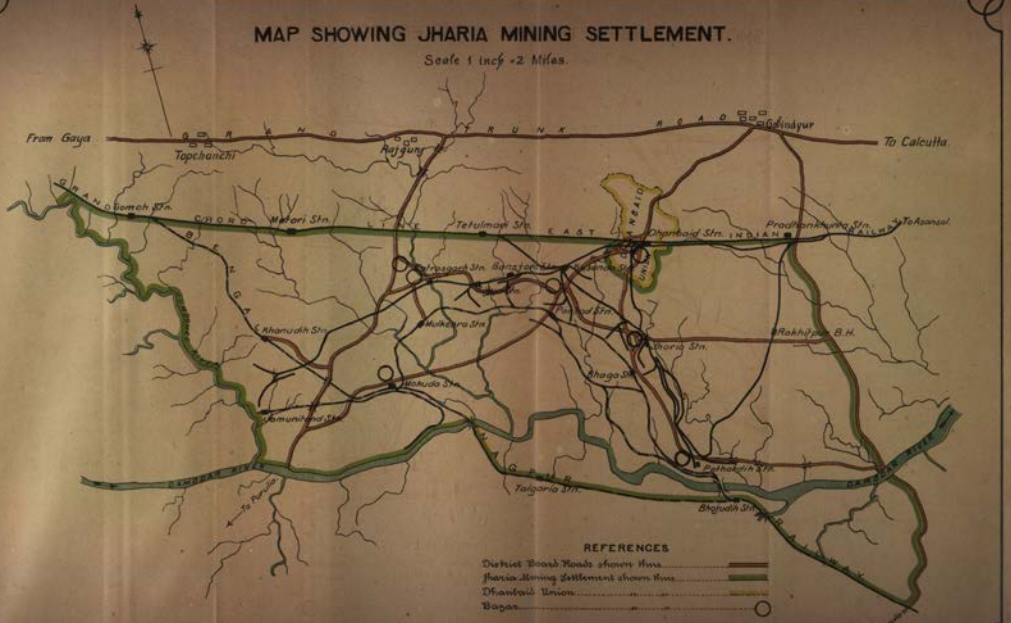
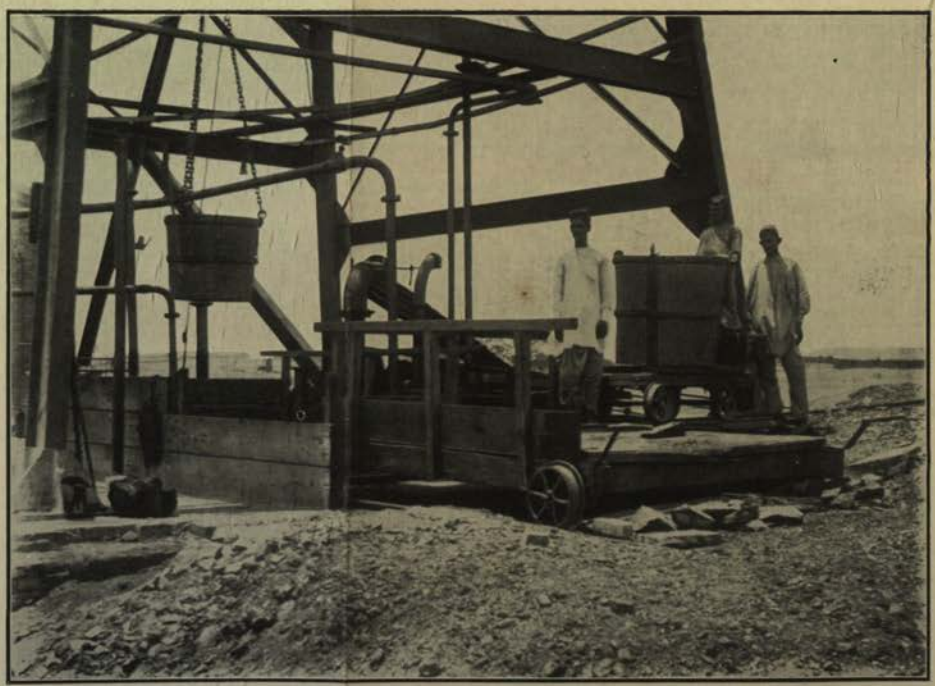


PLATE A.



Trolley Covering Top of Sinking Shaft.

PLATE B.

Balanced Doors Covering Top of Sinking Shaft.

APPENDIX I.

STATISTICS OF MINES AND MINERALS.

Table No. 1.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1914.

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							A.—COAL. Tons.									
Bihar and Orissa	Hazaribagh: Bokaro-Ramgarh	10	...	10	...	...	7,900	57	69	9	135	28	43	4	75	210
	Hazaribagh: Giridih	9	5	4	8	22	825,026	3,741	1,480	...	5,221	1,980	1,300	78	3,358	8,579
	Hazaribagh: Jharia	6	...	6	3	3	21,646	141	91	4	236	80	49	11	140	376
	Manbhum: Jharia	263	147	116	221	431	9,125,007	26,461	19,957	337	46,755	17,746	8,619	1,376	27,741	74,496
	Manbhum: Raniganj	83	9	74	36	50	519,371	2,315	1,179	6	3,500	1,151	630	51	1,832	5,332
	Sonthal Parganas: Raniganj	2	...	2	2	2	2,384	16	7	...	23	3	4	...	7	30
	Sonthal Parganas: Rajmahal	2	...	2	2	5	7,150	50	24	...	74	42	17	2	61	135
	Palamau, Daltonganj	1	1	...	2	2	81,680	279	173	58	510	223	48	27	298	808
	Sambalpur, Hingir-Rampur	1	1	...	...	...	60,883	329	138	...	467	204	40	4	248	715
	Total	377	163	214	274	515	10,651,047	33,389	23,118	414	56,921	21,457	10,750	1,553	33,760	90,681
Bengal	Bankura, Raniganj	2	...	2	1	1	5,702	43	22	...	65	8	8	...	16	81
	Birbhum "	1	...	1	...	...	2,023	13	8	...	21	10	2	...	12	33
	Burdwan "	175	146	29	136	311	4,416,815	17,058	8,406	159	25,623	8,070	4,738	334	13,142	38,765
	Total	178	146	32	137	312	4,424,540	17,114	8,436	159	25,709	8,088	4,748	334	13,170	38,879

APPENDIX I—*contd.*

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1914—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							A.—COAL—*contd.*									
							Tons									
Central Provinces	Chhindwara, Pench Valley	7	5	2	3	4	95,679	587	280	22	889	246	76	29	351	1,240
	Narsinghpur, Mohpani	1	1	...	...	...	59,774	594	208	...	802	412	50	...	462	1,264
	Chanda, Ballarpur	2	2	...	2	4	89,292	530	...	...	530	172	5	1	178	708
	Yeotmal	1	...	1	...	...	...	8	...	...	8	30	4	...	34	42
	Total	11	8	3	5	8	244,745	1,719	488	22	2,229	860	135	30	1,025	3,254
Panjab	Jhelum	6	...	6	...	...	45,867	629	...	5	634	253	...	14	267	901
	Shahpur	2	...	2	...	...	6,879	46	...	...	46	55	...	...	55	101
	Mianwali	2	...	2	...	...	1,557	88	...	5	93	56	6	4	66	159
	Total	10	...	10	...	...	54,303	763	...	10	773	364	6	18	388	1,161
Assam	Lakhimpur	7	4	3	7	10	303,890	1,619	250	...	1,869	541	220	45	809	2,678
	Naga Hills	1	...	1	...	..	778	37	...	...	37	129	24	...	153	190
	Total	8	4	4	7	10	304,668	1,656	250	...	1,906	673	244	45	962	2,868

Baluchistan	Kalat	4	...	4	...	...	3,161	49	...	...	49	13	..	...	13	62
	Quetta-Pishin	9	...	9	...	...	5,206	78	...	...	78	39	...	...	39	117
	Sibi-Khost	11	5	6	...	...	39,557	507	...	...	507	266	...	19	285	792
	Loralai	1	...	1	...	...	310	20	...	...	20	10	...	...	10	30
	TOTAL	25	5	20	...	...	48,234	654	...	...	654	328	...	19	347	1,001
North-West Frontier Province.	Hazara	1	...	1	...	...	94	7	...	...	7	...	...	...	...	7
	GRAND TOTAL (COAL) FOR 1914.	610	326	284	423	845	15,727,631	55,302	32,292	605	88,199	31,770	15,883	1,999	49,652	137,851
	" " OF PRECEDING YEAR.	602	314	288	234	432	15,486,318	52,687	31,657	484	84,828	30,647	15,586	1,981	48,214	133,042
	DIFFERENCE	+8	+12	—4	+189	+413	+241,313	+2,615	+635	+121	+3,371	+1,123	+297	+18	+1,438	+4,809
	B.—MICA.															
							Cwts.									
Bihar and Orissa	Monghyr	12	...	12	...	...	2,380	211	163	20	394	65	130	24	219	613
	Hazaribagh	452	6	446	34	36	24,116	3,200	1,820	420	5,440	1,414	1,209	702	3,325	8,765
	Gaya	28	...	28	6	6	4,653	624	463	74	1,161	306	333	206	845	2,006
	TOTAL	492	6	486	40	42	31,149	4,035	2,446	514	6,995	1,785	1,672	932	4,389	11,384
Madras	Coimbatore	1	...	1	...	...	...	...	...	...	...	13	...	...	13	13
	Nellore	77	9	68	49	50	5,556	2,097	1,371	179	3,647	431	471	379	1,281	4,928*
	Salem	4	...	4	...	...	322	70	...	...	70	88	129	41	258	328
	TOTAL	82	9	73	49	50	5,878	2,167	1,371	179	3,717	532	600	420	1,552	5,269

* Including labour figures for Nellore Samarskite.

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1914—*contd.*

Provinces.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							B.—MICA—*contd.* Cwts.									
Rajputana	Ajmer	3	...	3	...	...	873	88	20	...	108	51	23	...	74	182
	Merwara	5	...	5	4	4	289	86	10	...	96	37	17	..	54	150
	TOTAL	8	...	8	4	4	1,162	174	30	...	204	88	40	...	128	332
	GRAND TOTAL (MICA) FOR 1914.	582	15	567	93	96	38,189	6,376	3,847	693	10,916	2,405	2,312	1,352	6,069	16,985
	„ „ OF PRECEDING YEAR.	632	9	623	112	112	43,650	7,089	3,656	681	11,426	2,897	2,553	1,858	7,308	18,734
	DIFFERENCE	—50	+6	—56	—19	—16	—5,461	—713	+191	+12	—510	—492	—241	—506	—1,239	—1,749
							C.—MANGANESE. Tons.									
Central Provinces	Nagpur	21	2	19	15	16	153,816	1,233	1,050	10	2,293	522	345	29	896	3,189
	Bhandara	9	...	9	8	8	64,773	522	469	41	1,032	395	241	63	699	1,731
	Balaghat	16	...	16	4	5	204,105	2,151	1,839	119	4,109	278	182	22	482	4,591
	Chhindwara	2	1	1	2	2	87,114	543	515	11	1,069	59	6	1	66	1,135
	Jabalpur	1	...	1	...	...	...	6	11	...	17	3	6	2	11	28
	TOTAL	49	3	46	29	31	509,808	4,455	3,884	181	8,520	1,257	780	117	2,154	10,674
Madras	Vizagapatam	5	1	4	...	...	26,375	786	554	22	1,362	230	138	31	399	1,761

Bombay	Panch Mahals . . .	2	1	1	2	2	19,488	316	136	37	489	116	14	7	137	626
	GRAND TOTAL (MANGANESE) FOR 1914.	56	5	51	31	33	555,672	5,557	4,574	240	10,371	1,603	932	155	2,690	13,061
	" " OF PRECEDING YEAR.	60	5	55	12	16	637,391	6,433	4,746	177	11,356	1,478	935	191	2,604	13,960
	DIFFERENCE . . .	−4	...	−4	+19	+17	−81,719	−876	−172	+63	−985	+125	−3	−36	+86	−899
							D.—LIMESTONE.									
							Tons.									
Central Provinces . .	Jabalpur, Katni . . .	25	3	22	26	27	146,055	1,220	1,816	111	3,147	243	354	80	677	3,824*
Panjab	Hoshiarpur	1	...	1	...	...	450	20	...	..	20	40	...	...	40	60
	GRAND TOTAL (LIMESTONE) FOR 1914.	26	3	23	26	27	146,505	1,240	1,816	111	3,167	283	354	80	717	3,884
	" " OF PRECEDING YEAR.	25	3	22	22	25	71,259	878	1,149	55	2,082	255	373	35	663	2,745
	DIFFERENCE . .	+1	...	+1	+4	+2	+75,246	+362	+667	+56	+1,085	+28	−19	+45	+54	+1,139
							E.—SALT.									
							Tons.									
Panjab	Shahpur	1	...	1	...	...	4,830	16	13	3	32	...	..	...	...	32
	Jhelum	2	..	2	1	2	119,811	413	346	59	818	39	...	...	39	857
	Mianwali	1	...	1	...	...	10,877	59	...	14	73	...	...	...	...	73
	GRAND TOTAL (SALT) FOR 1914.	4	...	4	1	2	135,518	488	359	76	923	39	...	...	39	962
	" " OF PRECEDING YEAR.	4	...	4	1	6	138,540	455	358	70	883	49	...	...	49	932
	DIFFERENCE . . .	...	...	...	...	−4	−3,022	+33	+1	+6	+40	−10	...	...	−10	+30

* Including labour figures for Jabalpur Fuller's earth.

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1914—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							F.—GEMS.									
							(*a*) Rubies.									
							Carats.									
Burma	Mogok	8	8	...	...	...	192,503	857	...	...	857	872	...	...	872	1,729
							(*b*) Sapphires.									
	Mogok						56,709									
							(*c*) Spinels.									
	Mogok						54,830									
	TOTAL	8	8	...	...	...	304,042	857	...	...	857	872	...	...	872	1,729
	GRAND TOTAL (GEMS) FOR 1914.	8	8	...	...	...	304,042	857	...	...	857	872	...	...	872	1,729
	„ „ OF PRECEDING YEAR.	9	1	8	...	...	278,706	769	...	...	769	1,046	...	...	1,046	1,815
	DIFFERENCE	—1	+7	—8	...	...	+25,336	+88	...	...	+88	—174	...	...	—174	—86
							G.—SLATE.									
							Tons.									
Bihar and Orissa	Monghyr	4	...	4	...	...	2,600	112	53	58	223	57	..	...	57	280
Panjab	Kangra	5	...	5	...	...	6,940	120	3	2	125	174	41	33	248	373
	Gurgaon	5	...	5	3	3	2,829	193	...	58	251	30	...	7	37	288
	Gurdaspur	1	...	1	...	...	61	...	...	...	...	...	...	...	...	...

	TOTAL .	11	...	11	3	3	9,830	313	3	60	376	204	41	40	285	661
	GRAND TOTAL (SLATE) FOR 1914.	15	...	15	3	3	12,430	425	56	118	599	261	41	40	342	941
	" " OF PRECEDING YEAR.	15	...	15	...	...	11,470	319	25	58	402	425	75	83	583	985
	DIFFERENCE . . .	...	...	...	+3	+3	+960	+106	+31	+60	+197	—164	—34	—43	—241	—44
							H.—GOLD.									
							Ozs.									
Madras	Anantapur	3	3	...	...	...	19,873	606	...	...	606	1,013	250	169	1,432	2,038
	GRAND TOTAL (GOLD) FOR 1914.	3	3	...	...	.	19,873	606	...	...	606	1,013	250	169	1,432	2,038
	" " OF PRECEDING YEAR.	3	3	...	3	6	11,019	499	...	...	499	962	211	111	1,284	1,783
	DIFFERENCE . . .	...	...	...	—3	—6	+8,854	+107	...	...	+107	+51	+39	+58	+148	+255
							I.—IRON.									
							Tons.									
Bihar and Orissa .	Puri	1	1	...	...	...	48	6	...	4	10	16	...	7	23	33
	Singhbhum	1	...	1	...	...	151,029	600	240	40	880	53	2	...	55	935
	TOTAL .	2	1	1	...	...	151,077	606	240	44	890	69	2	7	78	968
Central Provinces .	Jabalpur	1	...	1	...	...	1,126	12	74	12	98	1	2	2	5	103
	Chanda	1	...	1	...	...	15,397	34	32	2	68	27	21	1	49	117
	TOTAL .	2	...	2	...	...	16,523	46	106	14	166	28	23	3	54	220
	GRAND TOTAL (IRON) FOR 1914.	4	1	3	...	...	167,600	652	346	58	1,056	97	25	10	132	1,188
	" " OF PRECEDING YEAR.	3	...	3	1	1	98,371	475	232	90	797	173	325	100	598	1,395
	DIFFERENCE . .	+1	+1	...	—1	—1	+69,229	+177	+114	—32	+259	—76	—300	—90	—466	—207

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1914—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							J.—WOLFRAM. Cwts.									
Burma	Tavoy	42	1	41	18	22	31,500	1,791	32	...	1,823	1,008	90	16	1,114	2,937
	Mergui	1	...	1	...	...	26	34	...	...	34	61	...	...	61	95*
	TOTAL	43	1	42	18	22	31,526	1,825	32	...	1,857	1,069	90	16	1,175	3,032
	GRAND TOTAL (WOLFRAM) FOR 1914.	43	1	42	18	22	31,526	1,825	32	...	1,857	1,069	90	16	1,175	3,032
	" " OF PRECEDING YEAR.	35	...	35	18	21	27,520	1,441	24	5	1,470	915	110	36	1,061	2,531
	DIFFERENCE	+8	+1	+7	...	+1	+4,006	+384	+8	—5	+387	+154	—20	—20	+114	+501
							K.—MAGNESITE. Tons.									
Madras	Salem	2	...	2	...	...	399	12	...	21	33	37	...	10	47	80
	TOTAL OF PRECEDING YEAR	4	...	4	1	1	14,086	326	375	249	950	120	...	9	129	1,079
	DIFFERENCE	—2	...	—2	—1	—1	—13,687	—314	—375	—228	—917	—83	...	+1	—82	—999

* Including labour figures for Mergui Tin.

L.—CHROMITE.																
							Cwts.									
Baluchistan	Quetta-Pishin	1	1	...	...	...	2,960	7	...	...	7	3	...	...	3	10
	Zhob	9	...	9	...	...	57,160	32	...	...	32	28	...	...	28	60
	GRAND TOTAL (CHROMITE) FOR 1914.	10	1	9	...	...	60,120	39	...	...	39	31	...	...	31	70
	TOTAL OF PRECEDING YEAR	10	...	10	...	...	68,280	6	...	...	6	64	...	...	64	70
	DIFFERENCE	...	+1	—1	...	...	—8,160	+33	...	...	+33	—33	...	...	—33	...
M.—COPPER ORE.																
							Tons.									
Bihar and Orissa	Singhbhum	1	1	...	1	5	4,400	402	...	...	402	841	564	60	1,465	1,867
	TOTAL OF PRECEDING YEAR	1	1	...	1	5	3,639	408	...	...	408	560	182	65	807	1,215
	DIFFERENCE	...	...	...	...	...	+761	—6	...	...	—6	+281	+382	—5	+658	+652
N.—FULLER'S EARTH.																
							Tons.									
Central Provinces	Jabalpur	1	...	1	1	1	109	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	103	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	+1	+1	+6	...	...	...	...	...	...	...	...	...
O.—CLAY.																
							Tons.									
Bihar and Orissa	Palamau	1	...	1	...	...	785	4	6	2	12	6	5	...	11	23
Central Provinces	Jabalpur	3	1	2	2	2	26,818	61	118	5	184	42	8	3	53	237
	GRAND TOTAL (CLAY) FOR 1914.	4	1	3	2	2	27,603	65	124	7	196	48	13	3	64	260
	TOTAL OF PRECEDING YEAR	6	1	5	4	4	23,665	133	98	...	231	99	...	...	99	330
	DIFFERENCE	—2	...	—2	—2	—2	+3,938	—68	+26	+7	—35	—51	+13	+3	—35	—70
P.—GALENA.																
							Cwts.									
Central Provinces	Drug	1	...	1	...	...	65	12	45	...	57	10	25	...	35	92
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	30	7	35	...	42	...	...	...	...	42
	DIFFERENCE	...	...	...	...	...	+35	+5	+10	...	+15	+10	+25	...	+35	+50

* Labour figures included with those for Jabalpur Limestone.

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1914—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 13).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 13).	Above ground: Total above ground.	Grand total below and above ground.
							Q.—BAUXITE. Cwts.									
Central Provinces	Jabalpur	1	...	1	...	...	9,280	16	12	...	28	5	...	...	5	33
	Total of preceding year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Difference	+1	...	+1	...	...	+9,280	+16	+12	...	+28	+5	...	...	+5	+33
							R.—TIN. Cwts.									
Bihar and Orissa	Hazaribagh	1	...	1	...	...	1	5	...	...	5	10	...	...	10	15
Burma	Mergui	1	...	1	...	...	140	...	...	...	...	...	...	...	...	...
	Tavoy	4	2	2	1	1	768	...	...	...	...	120	...	...	120	120
	Total	5	2	3	1	1	908	...	...	...	...	120	...	...	120	120
	Grand total (Tin) for 1914.	6	2	4	1	1	909	5	...	...	5	130	...	...	130	135
	" " of preceding year.	6	1	5	2	2	1,734	4	...	...	4	138	...	...	138	142
	Difference	...	+1	—1	—1	—1	—825	+1	...	...	+1	—8	...	...	—8	—7

* Labour figures included with those for Mergui Wolfram.

S.—STEATITE.																	
Central Provinces	Jabalpur	3	...	3	1	1	Cwts. 6,880	43	16	...	59	11	13	9	33	92
Madras	Kurnool	1	...	1	...	...	4,207	24	51	...	75	15	16	...	31	106
	GRAND TOTAL (STEATITE) FOR 1914.	4	...	4	1	1	11,087	67	67	...	134	26	29	9	64	198
	" " OF PRECEDING YEAR.	4	...	4	...	...	24,120	117	152	...	269	23	24	...	47	316
	DIFFERENCE	...	...	...	+1	+1	—13,033	—50	—85	...	—135	+3	+5	+9	+17	—118
T.—GRANITE.																	
Burma	Amherst	2	2	...	1	1	Tons. 125,348	495	7	...	502	125	9	5	139	641
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE	+2	+2	...	+1	+1	+125,348	+495	+7	...	+502	+125	+9	+5	+139	+641
U.—CORUNDUM.																	
Madras	Trichinopoly	1	...	1	...	...	Cwts. 478	9	17	...	26	9	14	17	40	66
	TOTAL OF PRECEDING YEAR	4	...	4	...	...	1,650	28	39	3	70	21	41	12	74	144
	DIFFERENCE	—3	...	—3	...	...	—1,172	—19	—22	—3	—44	—12	—27	+5	—34	—78
V.—SAMARSKITE.																	
Madras	Nellore	1	...	1	...	...	Cwts. 43	...	...	...	...	...	...	...	...	... *
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	3	...	...	...	...	...	...	...	...	... *
	DIFFERENCE	...	...	...	...	...	+40	...	...	...	...	...	...	...	...	... *

* Labour figures included with those for Nellore Mica.

STATISTICS OF MINES AND MINERALS—*concld.*

Table No. 1—*concld.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1914—*concld.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							W.—TRIPLITE.									
							Cwts.									
Bihar and Orissa	Gaya	1	...	1	...	...	200	...	...	...	...	...	...	...	...	...
	Total of preceding year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Difference	+1	...	+1	...	...	+200	...	...	...	...	...	...	...	...	...
							X.—PITCHBLENDE.									
							lbs.									
Bihar and Orissa	Gaya	1	...	1	1	1	16	50	44	4	98	...	...	...	...	98†
	Total of preceding year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Difference	+1	...	+1	+1	+1	+16	+50	+44	+4	+98	...	...	...	...	+98

GRAND TOTAL (ALL MINERALS) 1914.	1,387	369	1,018	603	1,040	Tons. 16,903,215 Cwts. 151,897 lbs. 16 Ounces. 19,873 Carats. 304,042	74,500	43,638	1,933	120,071	40,674	20,541	3,925	65,140	185,211
GRAND TOTAL OF PRECEDING YEAR.	1,426	338	1,088	411	631	Tons. 16,484,842 Cwts. 166,987 lbs. ... Ounces. 11,019 Carats. 278,706	72,074	42,546	1,872	116,492	39,872	20,415	4,481	64,768	181,260
DIFFERENCE . . .	—39	+31	—70	+192	+409	Tons. +418,373 Cwts. —15,090 lbs. +16 Ounces. +8,854 Carats. +25,336	+2,426	+1,092	+61	+3,579	+802	+126	—556	+372	+3,951

* Labour figures included with those for Pitchblende.
† Labour figures include those for Triplite.

APPENDIX I—*contd.*

Table No. 2.

Number of mines opened and closed during the year ending 31st December 1914.

Province.	District.		Number of mines opened.	Number of mines closed.
	A.—COAL.			
Bihar and Orissa	Hazaribagh	Jharia	2	1
		Bokaro-Ramgarh	6	7
		Giridih	...	2
	Manbhum	Jharia	19	18
		Raniganj	11	9
	Sonthal Parganas	Rajmahal	1	...
		Raniganj	1	...
	Total		40	37
Bengal	Burdwan-Raniganj		12	14
	Bankura		...	1
	Total		12	15
Baluchistan	Sibi-Khost		1	2
	Quetta-Pishin		2	1
	Kalat		1	...
	Total		4	3
Central Provinces	Chhindwara		1	...
	Yeotmal		1	...
	Total		2	...
Assam	Naga Hills		1	...
Panjab	Mianwali		2	2
	Total (Coal)		61	57
	B.—MICA.			
Bihar and Orissa	Monghyr		4	4
	Hazaribagh		138	257
	Gaya		3	5
	Total		145	266

APPENDIX I—*contd.*

Table No. 2—*contd.*

Number of mines opened and closed during the year ending 31st December 1914—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
Madras	Coimbatore	...	1
	Nellore	23	43
	Salem	1	4
Total		24	48
Rajputana	Ajmer	1	...
	Merwara	1	...
Total		2	...
Total (Mica)		171	314
	C.—MANGANESE.		
Central Provinces	Bhandara	...	2
	Balaghat	2	6
	Nagpur	...	11
Total		2	19
Madras	Vizagapatam	...	5
Total (Manganese)		2	24
	D.—LIMESTONE.		
Central Provinces	Jabalpur	6	9
Panjab	Hoshiarpur	1	1
Total (Limestone)		7	10
	E.—CHROMITE.		
Baluchistan	Zhob	4	...
	F.—CLAY.		
Central Provinces	Jabalpur	1	...
	G.—IRON.		
Central Provinces	Jabalpur	...	1
	H.—WOLFRAM.		
Burma	Tavoy	4	11
	I.—GEMS.		
Burma	Mogok	1	1
	J.—TIN.		
Burma	Tavoy	1	2

APPENDIX I—*contd.*

Table No. 2—*concld.*

Number of mines opened and closed during the year ending 31st December 1914—*concld.*

Province.	District.	Number of mines opened.	Number of mines closed.
	K.—STEATITE.		
Central Provinces	Jabalpur	...	3
Madras	Kurnool	...	1
Total (Steatite)		...	4
	L.—SLATE.		
Panjab	Gurgaon	...	1
	M.—GALENA.		
Central Provinces	Drug	1	1
	N.—CORUNDUM.		
Madras	Trichinopoly	...	1
	O.—SAMARSKITE.		
Madras	Nellore	1	1
	P.—PITCHBLENDE.		
Bihar and Orissa	Gaya	1	...
	Q.—TRIPLITE.		
Bihar and Orissa	Gaya	1	...
	R.—GRANITE.		
Burma	Amherst	...	2
	S.—BAUXITE.		
Central Provinces	Jabalpur	...	1
GRAND TOTAL		256	431

APPENDIX I—*contd.*

Table No. 3.

The following table shows the fluctuations in the output of the principal minerals raised from mines classed under the Indian Mines Act, 1901. The other minerals raised are gems, slate, iron ore, magnesite, chromite, tin, steatite, fuller's earth, clay, galena, corundum, samarskite, bauxite, granite, triplite and pitchblende.

Year.	Coal.	Manganese.	Mica.	Limestone.	Salt.	Wolfram.	Gold.	Copper.
	Tons.	Tons.	Cwts.	Tons.	Tons.	Cwts.	Troy ozs.	Tons.
1905 . .	7,770,471	204,194	25,548	93,170	94,078	...	93	2
1906 . .	9,112,663	436,442	50,438	48,836	118,023	...	...	...
1907 . .	10,526,468	642,082	44,919	73,222	101,703	...	4,017	...
1908 . .	12,149,020	494,942	46,208	101,569	93,779	...	7,242	10
1909 . .	11,294,227	357,205	32,011	56,502	126,987	144	5,615	7
1910 . .	11,387,716	468,669	21,375	81,258	119,867	18	3,269	864
1911 . .	12,048,726	441,426	31,686	92,692	124,603	8,394	8,277	2,079
1912 . .	14,044,368	423,464	41,660	91,784	131,233	25,401	7,269	8,984
1913 . .	15,486,318	637,391	43,650	71,259	138,540	27,520	11,019	3,639
1914 . .	15,727,631	555,672	38,189	146,505	135,518	31,526	19,873	4,400

Table No. 4.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rates during the years 1905 to 1914 in respect of coal mines under the Indian Mines Act, 1901 :—

Year.	Amount of coal raised.	Average number of persons working daily below and above ground.	Number of deaths below and above ground.	Death-rates.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above ground.
1905 . . .	7,770,471	79,506	58	7·46	·72
1906 . . .	9,112,663	90,159	80	8·78	·89
1907 . . .	10,526,468	102,689	89	8·45	·86
1908 . . .	12,149,020	120,107	164	13·49	1·36
1909 . . .	11,294,227	109,291	119	10·53	1·08
1910 . . .	11,387,716	105,285	160	14·05	1·52
1911 . . .	12,048,726	106,598	148	12·28	1·38
1912 . . .	14,044,368	121,392	157	11·17	1·29
1913 . . .	15,486,318	133,042	185	11·95	1·39
1914 . . .	15,727,631	137,851	145	9·22	1·05

APPENDIX I—*concld.*

Table No. 5.

Statement showing the output of coal, the number of persons employed and the number of tons of coal raised per person employed in and about the coal mines of the principal coal-producing countries of the world:—

Year.	Country.	Tons of coal raised.	Persons employed.	Tons raised per person employed.
1913	United Kingdom	287,411,869	1,127,890	254
1912	United States	477,204,535	722,662	660
„	Germany	251,768,300	718,673	350
„	Austria-Hungary	51,691,931	130,748*	395
„	France	39,755,949	202,365	196
„	Belgium	22,609,180	146,207	154
„	Nova Scotia	6,802,997	13,297	511
„	British Columbia	3,025,709	7,130	424
„	Australia	11,729,775	21,842*	537
„	Natal	2,468,811	9,409	262
„	Transvaal	4,242,723	9,251	458
„	Japan	19,329,447	152,429	126
„	New Zealand	2,177,615	4,328	503
1910	Russia	25,031,716	186,333	138
		1,175,250,057	3,446,564	341
1914	British India	15,727,631	137,851	114

* Number of persons employed at coal mines in Hungary and Tasmania not available.

APPENDIX II.

ACCIDENTS IN MINES.

Table No. 1.

List of Fatal Accidents in mines regulated by the Indian Mines Act, 1901, during the year 1914.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			EXPLOSIONS OF FIREDAMP—(*1 death*).			
1	9th January, 9 A.M.	Old West Ledo Valley Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Mandhari Bengali, (*m.*), 35, "*Opening*" *man.*	Coal	Deceased was engaged in firing dynamite shots in a "chamber" by means of a fuse and a lighted rag when an ignition of gas took place and he was burned so severely that he died six days afterwards. The rag had been lighted by the European assistant foreman who had opened his safety lamp for the purpose, and who claimed to have tested for gas before charging the shot holes. Inspection and inquiry made. *See Report, page 5.*
			FALLS OF ROOF AND SIDE—(*95 deaths*).			
			(*a*) **Falls of Roof**—(*48 deaths*).			
2	6th January, 4 A.M.	Chanch Mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Sonatan Bauri, (*m.*), 24, Mohinda Bauri, (*m.*), 27, *Miners.*	Coal	A piece of roof coal, measuring 13′×9′×2′ 6″ thick, fell and killed the two deceased outright. They were engaged in getting it down at the time. The roof had two loose ends and one side was traversed by a "slip." The place was well timbered. Inspection and inquiry made.
3	27th January, 7 P.M.	Kendwadih Mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Barka Manjhi, (*m.*), 16, *Miner.*	Coal	Deceased worked in a pillar cutting district and was returning to his working place after having emptied a basket of coal, when a mass of top coal, weighing about two tons, fell upon him from the roof, killing him on the spot. Inspection and inquiry made.
4	12th February, 3 A.M.	Ganzlatan Mine, Sijua P. O., Bihar and Orissa.	New Manbhum Coal Co., Ld.	Murat Passi, (*m.*), 35, *Miner.*	Coal	Deceased was working in a dip gallery and it is presumed that hearing sounds indicating a weakness in the roof, he attempted to run out to safety. He was, however, killed instantly by a large mass of falling stone and coal measuring 35′×7′×1′ 10″. Inspection and inquiry made.
5	17th February, 2-30 P.M.	Budeadih Mine, Giridih P. O., Bihar and Orissa.	Budeadih Coal Co.	Hardayal Mallah, (*m.*), 45, *Propping mistri.*	Coal	Deceased passed through a fence and entered some old workings when a piece of roof stone, measuring 6′×5′×2′, fell from a "slip" and killed him on the spot. A man who went to the rescue was also struck by a small piece of stone and sustained a comminuted fracture of the right leg. Inspection and inquiry made.
6	19th February, 12-40 P.M.	Lower Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Dhaneswar Musohar, (*m.*), 40, *Sirdar.* Girao Lohar, (*m.*), 23, *Coal shoveller.*	Coal	Whilst the two deceased were at work in a "chamber", measuring 25′×15′, a mass of about sixty tons of coal fell without warning from converging "slips" in the roof and killed them on the spot. Inspection and inquiry made.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—(*contd.*)			
			(*a*) **Falls of Roof**—*contd.*			
7	21st February, 2 P.M.	New Tetturia Mine, Katrasgarh P. O., Bihar and Orissa.	New Tetturia Coal Co., Ld.	Lukhu Bauri, (*m.*), 30, *Coal-cutter.*	Coal	Deceased, during the temporary absence of the sirdar, went behind a fence to rob top coal at the corner of a pillar. Whilst so doing, a mass of coal and stone, weighing about two tons, fell upon him from the roof. He died an hour and a half afterwards from injuries sustained. Inspection and inquiry made.
8	24th February, 1-30 P.M.	East Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Bhusan Manjhi, (*m.*), 45, *Coal-cutter.*	Coal	Deceased was working in the face of a dip gallery, which was about 6 feet in height and in which 6 inches of top coal formed part of the roof, when a large mass of stone and coal, measuring 8′×5′×3 thick, fell from the roof upon him and killed him instantly. Inspection and inquiry made.
9	21st April, 12 noon.	Fatka Mine, Nirshachati P. O., Bihar and Orissa.	Fatka Coal Co.	Gobinda Mahato, (*m.*), 18, *Coal-cutter.*	Coal	Deceased, during the temporary absence of the sirdar went behind a fence to gather coal. Whilst so doing a mass of coal and stone, weighing about two tons, fell upon him from the roof, from a height of 6′ 6″. He died two days later from injuries received. Inspection and inquiry made.
10	27th April, 8 P.M.	Jamadoba Mine, Jamadoba P. O., Bihar and Orissa.	Indian Collieries Syndicate, Ld.	Raghunath Gosain, (*m.*), 30, *Mine sirdar.*	Coal	Deceased, a mine sirdar, deliberately went through a fence into a goaf area from which the timber had been withdrawn two days before, to get some coal from a chowkidar left behind. He had thrown out about ten cwts. when the roof fell, over an area of 15′×15′×10″ thick, killing him instantly. Inspection and inquiry made.
11	3rd June, 1 P.M.	Pahargora Mine, Samdih P. O., Bengal.	F. W. Heilgers and Bros.	Paru Manjhi, (*m.*), 32, *Miner.*	Coal	Deceased, during the temporary absence of the sirdar, began to cut roof coal. After having done so and whilst filling a tub, a ton of coal, in several pieces, fell upon him from the roof at a height of 13′ 6″. He died two hours afterwards from shock. Inspection and inquiry made.
12	6th June, 5 A.M.	Burra Dhemo Mine, Sitarampur P. O., Bengal.	Burra Dhemo Coal Co., Ld.	Sashi Bauri, (*m.*), 32, *Miner.*	Coal	Deceased went behind a fence to rob a pillar. Whilst so doing, a mass of roof stone, measuring 5′ 6″×2′ 6″×1′ 0″, fell upon him from a height of 4 feet. He was severely injured internally and died six and a half hours later. Inspection and inquiry made.
13	24th June, 5 P.M.	Dhobidih Mine, Giridih P. O., Bihar and Orissa.	Bengal Giridih Coal Co., Ld.	Siva Musohar, (*m.*), 25, Pirchand Burhi, (*m.*), 24, Lali Rai, (*m.*), 28, Sankar Rai, (*m.*), 16, *Coal-cutters.* Ranwa Ghatwarin, (*f.*), 30, Gandari Ghatwarin, (*f.*), 20, *Coal-carriers.*	Coal	Seventeen persons were engaged in reducing a thin pillar of coal in a seam 10 feet thick and in a goaf 68′×70′ from which all coal had been removed. When the pillar was about 3′ square it suddenly collapsed. All the persons fled to a place of safety, but after the head of the gang had satisfied himself there was no "weighting," six of them decided to go back to get the fallen coal. Shortly afterwards 2,000 c. ft. of sandstone roof being 5½′ thick and weighing about 130 tons fell on them, killing them outright. Inspection and inquiry made. *See Report, page 6.*

14	25th June, 9-30 A.M.	Simlabahal Mine, Jharia P. O., Bihar and Orissa.	Bhalgora Coal Co., Ld.	Basu Singh, (*m.*), 50, *Miner.*	Coal .	On the day previous to the accident deceased had gone into a fenced off gallery close to the loading line to rob some coal and had been turned out by the sirdar, on the following morning deceased instead of going where he was told, again went into the same gallery and started to cut coal when about three tons of coal fell from two "slips" in the roof at a height of 7 feet and killed him instantly. Inspection and inquiry made.
15	15th July 12 noon	South-East Baraboni Mine, Charanpur P. O., Bengal.	Maharaja M. C. Nandi .	Keola Kol, (*m.*), 35, *Miner.* Sonia Kolin, (*f.*), 18, *Coal-carrier.*	Coal .	A piece of coal, lenticular in shape, measuring 18′ long × 5′ 6″, in the extreme width 1′ 8″ thick, fell from a height of 16 ft. in a gallery and killed the two deceased outright. The coal came away from an exposed "fault" on one side and from a "cleat" on the other side. Inspection and inquiry made.
16	16th July, 3-30 P.M.	Sudihi Mine, Sitarampur P. O., Bengal.	Sudihi Coal Co., Ld. .	Goman Bauri, (*m.*), 25, Bisto Bauri, (*m.*), 30, *Miners.* Rakhal Bauri, (*m.*), 27, *Propping coolie.*	Coal .	A fall of roof coal and stone, measuring 62′ × 40′ × 2′ 7″ thick, fell from a height of 5 ft. in an old goaf which had been "weighting." The fall took place first from half the area and extinguished all the lights in the mine. In the confusion which followed the three deceased entered the goaf and were buried by the fall from the remaining half. Inspection and inquiry made.
17	20th July, 10-15 A.M.	Saltore Mine, Dishargarh P. O., Bihar and Orissa.	Saltore Coal Co., Ld. .	Hopna Manjhi, (*m.*), 30, *Miner.*	Coal .	Deceased and two companions were engaged in cutting down roof coal in a gallery, when the piece of coal on which they were working, measuring 18′ × 1′ 6″ × 3′ thick, fell from a height of 17′ 6″. The shock occasioned by the fall brought on an epileptic fit from which deceased never recovered conciousness. The coal was full of very pronounced "cleats" that ran parallel with the sides of the gallery. Inspection and inquiry made.
18	21st August, 10 A.M.	Panchgatchia Mine, Sitarampur P. O., Bengal.	Lutchipur Coal Co., Ld. .	Dasu Turi, (*m.*), 35, *Coal-cutter.*	Coal .	Deceased and a companion were working in a gallery getting down roof coal. Deceased had been warned not to pass under the coal but, disregarding the warning, did so and was struck by a mass, measuring 8′ × 3′ × 1′ 6″ and weighing about 6 cwts., which fell from a height of 5′ 6″. He died within three hours from the injuries received. Inspection and inquiry made.
19	26th August, 10-30 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gopal Uria, (*m.*), 24, *Coal shoveller.*	Coal .	Whilst six persons were at work in a "chamber," measuring 50′ × 18′ × 10′ high, three tons of coal fell from a "slip" in the roof without warning. Deceased, who was shovelling coal at the time, was killed on the spot. Inspection and inquiry made.
20	30th August, morning.	Basudin Mine, Ajmer P. O., Rajputana.	Rajputana Mica and Mineral Co., Ld.	Binja, (*m.*), 25, *Labourer.*	Mica .	Deceased went into a closed portion of the mine to get shade while crushing up his tobacco and was suffocated by a fall of earth.
21	9th September, 12 midnight.	Bhuggutdih Mine, Jharia P. O., Bihar and Orissa.	Bengal-Nagpur Coal Co., Ld.	Harku Mahato, (*m.*), 40, *Coal-cutter.* Nuni Mullick, (*f.*), 30, *Carrier.*	Coal .	The two deceased went through a fence to rob coal from a pillar which had been fenced off that morning because the roof was "weighting," when about eight cwts. fell from a "slip" in the overhanging coal. Harku was killed outright and Nuni died as she was being taken out of the mine. Inspection and inquiry made.
22	10th September, 5-30 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Birbahadur Chattri, (*m.*), 23, *Coal shoveller.*	Coal .	Whilst deceased was shovelling in a "chamber", measuring 55′ × 25′ × 18′ high, about ten tons of coal and clay fell from the roof without warning. He sustained injuries from which he died shortly afterwards. Four other persons escaped. Inspection and inquiry made.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—(*contd.*)			
			(*a*) **Falls of Roof**—*concld.*			
23—	11th September, 3 A.M.	Nandi Mine, Nandi P. O., Bengal.	Adjai Coal Co., Ld.	Hopna Manjhian, (*f.*), 32, *Coal-carrier.*	Coal .	Deceased was loading in a gallery, and whilst so doing a mass of roof stone, measuring 4′ 9″×3′ 9″×8″ thick, and tapering to feather edges, fell upon her from a height of 14′ 6″, inflicting injuries which caused instant death. Inspection and inquiry made.
24	18th September, 2-30 P.M.	Bhulanbarari Mine, Jamadoba P. O., Bihar and Orissa.	Bhulanbarari Coal Co., Ld.	Jagu Kol, (*m.*), 20, *Miner.*	Coal .	Whilst deceased was sitting down near the face of the gallery in which he worked, a fall of roof stone occurred. He sustained injuries from which he died two days later. The stone which fell was a round mass of impure iron stone 3 feet in diameter and 2′ 6″ thick. It had been imbedded partly in the roof, but mainly in the coal at the top of the seam. Inspection and inquiry made.
25	26th September, 3 P.M.	Jharia Khas Mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Mongal Chamar, (*m.*), 35, *Coal-cutter.*	Coal .	Whilst deceased was assisting another miner to take down roof coal in a gallery 10 feet high, a mass of coal weighing about two tons fell away from "slips" in the roof. He was struck by the falling coal and killed on the spot. Inspection and inquiry made.
26	16th October, 1 A.M.	Central Kurkend Mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ld.	Gangia Kolin, (*f.*), 25, *Coal-carrier.*	Coal .	Deceased was employed in loading coal in a gallery when roof coal was being taken down. She was killed on the spot by the fall of a mass of "jhamma" (burnt coal) from the roof. The mass was wedge shaped and measured, 6′×6′ to 3′ to 0″ thick. It fell from between converging "slips", from a height of 10 feet. Inspection and inquiry made.
27	20th October, 8 A.M.	Sor Range Mine, Quetta P. O., Baluchistan.	S. Pherozeshaw.	Rozadin, (*m.*), 30, *Miner.*	Coal .	Deceased was killed by a fall of about a ton of shale which fell from the roof from a height of 2 feet on to him.
28	11th November, 12-30 P.M.	Jharia Khas Mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Birbal Kumar, (*m.*), 35, Lachia Kumarin, (*f.*), 40, *Coal-carriers.*	Coal .	Whilst the two deceased were loading coal in the face of a gallery a mass of shale, measuring 6′×3′ 6″ thick, fell from the roof at a "fault" from a height of 7 feet. Birbal died on the spot and Lachia sustained a compound fracture of the leg, and died some days later. Inspection and inquiry made.
29	19th November, 1 P.M.	Hatnol Mine, Dishargarh P. O., Bengal.	M. L. Laik and Bros.	Mohesh Bauri, (*m.*), 26, Jogindra Bauri, (*m.*), 22, *Miners.*	Coal .	The two deceased entered a gallery that they and all the officials of the mine knew to be dangerous, and started to cut roof coal without authority. A piece of coal, measuring 4′ 6″×4′ 9″×1′ 6″ thick, fell from a height of 6′ 9″ and killed them outright. A girl aged fourteen who was carrying coal for them was knocked over by a piece of rolling coal and was injured. Inspection and inquiry made.

30	24th November, 10-30 A.M.	Bhutgoria Mine, Jamadoba P. O., Bihar and Orissa.	Aldih Coal Co., Ld.	Behari Mahato, (*m.*), 17, *Pump khalasi.*	Coal .	Deceased was cleaning out the suction pipe of a pump under his charge, whilst so engaged a thin slab of stone, measuring 2′×1′×2″ thick, fell from the roof and fractured his leg. He died in hospital a month later. Inspection and inquiry made.
31	27th November, 5 P.M.	Ashakuti Mine, Katrasgarh P. O., Bihar and Orissa.	Parascole Coal Co., Ld.	Thakur Manjhi, (*m.*), 20, *Coal-cutter.*	Coal .	Deceased, in the absence of the sirdar who had gone to another part of the mine, went through a fence to cut coal from a pillar. Whilst so engaged, a mass of coal and stone band, measuring 5′ 6″×3′ 0″×8″ thick, fell upon him from a height of 6 feet and broke his back. He died one and a half hours afterwards. Inspection and inquiry made.
32	2nd December, 3 A.M.	Bhaga Mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Sundar Bauri, (*m.*), 35, *Miner.*	Coal .	Deceased in the absence of the sirdar, broke down two fences, and went beyond them to rob a pillar. Whilst so engaged a mass of roof coal, weighing about 10 cwts., fell upon his head and killed him instantly. Inspection and inquiry made.
33	17th December, 12-30 P.M.	Chinchuria Mine, Asansol P. O., Bengal.	New Birbhum Coal Co., Ld.	Dhobani Dhobi, (*m.*), 35, *Propping mistri.*	Coal .	Against the explicit orders of his superiors and in their absence deceased passed under a fence to sound the roof of a goaf. Whilst so doing, a mass of coal, measuring 20′ × 10′ × 2′ 6″ and weighing about 16 tons, fell from a height of 10 feet upon him. He was killed instantly. Inspection and inquiry made.
34	17th December, 1-30 P.M.	East Ledo Valley Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Jhuri Ahir, (*m.*), 34, *"Opening" man.*	Coal .	Whilst deceased was standing at the entrance to a "chamber" he was killed by the fall from the roof of about a ton of coal. Inspection and inquiry made.
35	21st December, 6-30 A.M.	Nodiha Mine, Dishargarh P. O., Bihar and Orissa.	Nodiha Coal Co., Ld.	Ati Mullick, (*f.*), 26, *Kamin.*	Coal .	Deceased was working in a gallery of a pillar-cutting district when a large area of roof stone fell in the goaf. The vibration consequent upon this caused a stone, measuring 5′ × 4′ × 5″ thick, to fall upon her from the roof from a height of 8 feet. She was killed instantly. Inspection and inquiry made.
36	25th December, 4-30 A.M.	Dandot Mine, Choa Saidan Shah P. O., Panjab.	Thakur and Ramji Dass	Monlu, (*m.*), 28, *Miner.*	Coal .	Deceased was cutting coal which was very loose when a slab of roof shale, 5′ long × 3′ 6″ wide and of unknown thickness, gave way at the end next to the coal which it crushed beneath it. There was a bag full of coal lying between two of a row of chocks. This bag barred his egress and the slab caught him between the line of chocks and the coal face and killed him.
			(*b*) **Falls of side**—(*47 deaths*).			
37	3rd January, 12-10 A.M.	Bhowra Mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Sukar Bhuia, (*m.*), 18, *Coal-cutter.*	Coal .	Deceased was struck by the fall of about two tons of coal from the corner of a pillar on a travelling road passing through an area of split pillars. He died on the way to hospital. The travelling road was fenced. Inspection and inquiry made.
38	22nd January, 2-30 P.M.	Kachidhana Mine, Sansar P. O., Central Provinces.	Indian Manganese Co., Ld.	Torsi Mehra, (*f.*), 50, *Ore carrying coolie.*	Manganese .	Deceased with another woman went to gather some ore lying below a piece of ground, on which work had been stopped by the manager about a fortnight before. About one and a half tons of earth fell covering deceased entirely and breaking her neck. The other woman was partially buried but was uninjured. Inspection and inquiry made.
39	23rd January, 3-30 P.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Sampat Koiri, (*m.*), 28, *Coal shoveller.*	Coal .	Deceased whilst loading in a "chamber", measuring 63′ × 25′×6′ to 18′ high, was injured by the fall of about a ton of coal from the side of the "chamber" from a height of 12 feet. The head sirdar was present and had tested the sides. Inspection and inquiry made.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*b*) **Falls of side**—*contd.*			
40	3rd February, 2 A.M.	Bhuggutdih Mine, Jharia P. O., Bihar and Orissa.	Bengal-Nagpur Coal Co., Ld.	Chowa Meah, (*m.*), 30, *Coal-cutter.*	Coal . .	Deceased went behind a fence to rob the side of a pillar and whilst doing so, a mass of coal, weighing about one and a half tons, fell on him killing him instantly. Inspection and inquiry made.
41	4th February, 11-30 A.M.	Méké Mine, Tavoy P. O., Lower Burma.	Moung Ni Toe. . .	Maung Shwe Yoe, (*m.*), 53, Mah Kya Yin, (*f.*), 20, *Coolies.*	Wolfram .	As the two deceased, who were father and daughter, were working in an open cutting 4′ 6″ high by 5′ wide, a portion of the side of the cutting collapsed and buried them. Maung Shwe Yoe was killed instantly and Mah Kya Yin died as soon as liberated.
42	9th February, 7 A.M.	Laristand Mine, Hazaribagh P. O., Bihar and Orissa.	Bihaskuari . . .	Mussamat Sukri Bhuiani, (*f.*), 24, Mussamat Murti Bhuiani, (*f.*), 24, *Labourers.*	Mica . .	The two deceased together with a girl of seventeen years of age entered an abandoned mica mine to get some felspar for whitewashing their huts. A collapse of earth occurred and the deceased were totally buried and when dug out were dead. The girl sustained minor injuries. Prosecution against owner initiated. *See Report, page 13.*
43	13th February, 3 P.M.	Sudriadih Mine, Nowagarh P. O., Bihar and Orissa.	Sudriadih Coal Co., Ld. .	Giridhari Roy, (*m.*), 35, *Coal-cutter.* Jogna Roy, (*f.*), 30, Lukri Roy, (*f.*), 24, *Coal-carriers.*	Coal . .	Whilst miners were at work on a pillar in a "broken" district, a mass of undercut coal, measuring 17′ long × 4′ to 10′ high × 1′ 3″ to 4′ thick, fell from the side of the opposite pillar killing the three deceased on the spot. Inspection and inquiry made.
44	26th February, 4 A.M.	Bagdiggi Mine, Jharia P. O., Bihar and Orissa.	C. J. Smith . . .	Phucha Manjhi, (*m.*), 30, *Coal-cutter.*	Coal . .	Deceased was set to cut floor coal by the overman and night-shift sirdar. During their absence he began to undercut the side of a pillar about 30 ft. away from his appointed working place. Whilst so doing a mass of coal, weighing about one and a half tons fell. A piece weighing about 1 cwt. fell upon his head and killed him instantly. Inspection and inquiry made.
45	10th March, 1 P.M.	Jharia Khas Mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld. .	Etwari Turi, (*m.*), 26, *Coal-cutter.*	Coal . .	Deceased was loading coal at the base of a pillar and whilst so doing, a mass of coal, measuring 3′ × 4′ × 2′ thick, together with several smaller lumps, fell from a height of 7′ 11″. Deceased was struck by some of the smaller falling coal and rendered unconscious, and was found half an hour later with his nose and mouth buried in dust coal. Death was caused by suffocation. Inspection and inquiry made.
46	12th March, 2 P.M.	Bansdeopur Mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co. .	Karu Manjhi, (*m.*), 22, *Coal-cutter.* Budhni Manjhian, (*f.*), 20, *Carrier.*	Coal .	The two deceased went down the pit on a Puja day, unknown to the management, who had made no arrangement for the colliery to be worked. They went behind a fence to rob a pillar and whilst undercutting a corner of it, a large mass of coal, weighing between eight to ten tons, fell upon them

						from a height of about 8 feet. They were killed instantly. Inspection and inquiry made.
47	30th March, 6-45 A.M.	Bansdeopur Mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co.	Doyal Gope, (*m.*), 28, *Coal-cutter.*	Coal	Deceased had gone behind a fence to rob the corner of a pillar and while so doing, a mass of coal, weighing about 10 tons, fell. He was struck by several small pieces of coal which fell from a height of about 20 feet. He was killed instantly. Inspection and inquiry made.
48	11th April, 6 P.M.	Bhuggutdih Mine, Jharia P. O., Bihar and Orissa.	Bengal-Nagpur Coal Co., Ld.	Bepot Meah, (*m.*), 50, *Coal-cutter.*	Coal	Deceased went through a fence and began to rob coal from the corner of a pillar, when the corner came away from two "slips" and about five tons, fell on him. He was standing on a barrel and was knocked down inside it being killed instantly. Inspection and inquiry made.
49	12th April, 5-30 A.M.	Nimcha Mine, Searsol P. O., Bengal.	Baraboni Coal Concern, Ld.	Sri Ram Mullick, (*m.*), 23, *Coal-cutter.*	Coal	Four persons were cutting coal from the side of a pillar in a fenced area when a block of coal, measuring 49′×5′ 10″×8′ high, fell from a height of 7 feet and killed deceased outright and seriously injured two others. Inspection and inquiry made.
50	16th April, 11-30 A.M.	Balaghat Mine, Dongri P. O., Central Provinces.	Central Provinces Prospecting Syndicate, Ld.	Anantram Marar, (*m.*), 25, *Rock worker.*	Manganese	A slab of rock, measuring 10′×4′×1′ 6″ thick, slid off a joint plane near the top of the excavation and fell on deceased at a point about 20 feet lower down, killing him instantly.
51	20th April 5 P. M.	Hermyingyi Mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Po Tun, (*m.*), 25, *Labourer.*	Wolfram	Deceased after kicking down some of the reef near the surface of an excavation 20 ft. deep sat down in the bottom of the excavation to rest in the shade. Whilst sitting there some of the ground which his work had probably loosened fell on him causing injuries from which he died on his way to hospital.
52	11th June, 1 A.M.	East Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Bhupan Meah, (*m*), 30, *Miner.*	Coal	Whilst a pillar of coal was being split in a pillar cutting district a piece of coal, 2′ 6″×2′6″×1′ 3″, after being side cut by deceased, came away suddenly from a hidden "slip" and fell on his left thigh. He walked out of the pit, but died the following day from peritonitis, caused by the blow. Inspection and inquiry made.
53	13th June, 10-30 P.M.	Barari Mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Mohinda Rai, (*m.*), 30, *Miner.*	Coal	Deceased broke down a fence and began to rob coal from a pillar corner, when about ten tons fell and caught him, causing injuries from which he died some five hours later. Inspection and inquiry made.
54	18th June, 11-30 A.M.	Khurhurbari Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Khubi Dosadh, (*m.*), 35, *Jig brakesman.*	Coa	A piece of coal, measuring 6′×7′ 9″×1′ 6″ thick, fell from the overhanging side of a gallery and killed deceased outright. He was probably sitting down talking to his brother who was, it is surmised, getting down the coal at the time. The miners who were working at this place and who were related to the deceased were doing so against orders. A sirdar was dismissed and the company refused to pay the usual compensation to the deceased relatives. Inspection and inquiry made.
55	18th July, 3 P.M.	Lower Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Monbir Mongor, (*m.*), 25, *Coal loader.*	Coal	Whilst deceased was loading coal in a "chamber" a lump of loose coal, weighing about one ton, rolled down from the rise side and killed him on the spot. The dip is 1 in 3. The sirdar heard the coal moving and shouted a warning, but deceased failed to get out of the way. Inspection and inquiry made.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*b*) **Falls of Side.**—*contd.*			
56	24th July, 7 A.M.	West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Ganga Gere, (*m.*), 23, *Coal shoveller.*	Coal	In the process of forming a "chamber" the pillars surrounding it became crushed. Whilst the sirdars were examining the "chamber" and the workmen were sitting down some distance back, a mass of about a ton of coal fell from the side of the tram road and killed deceased on the spot. The road was 5′ 6″ wide and 6′ high. Inspection and inquiry made.
57	5th August, 10-15 P.M.	New Suratand Mine, Jharia P. O., Bihar and Orissa.	J. L. Banerjee & Co.	Bhadu Mullick, (*m.*), 36, *Coal-cutter.*	Coal	Deceased went through a fence and started cutting the side of a pillar when a piece of coal, measuring 10′×3′ 6″×2′ thick, fell from a "slip" and broke his right ankle. He died from shock thirty-six hours later. Inspection and inquiry made.
58	11th August, 2 P.M.	Dandot Mine, Dandot P. O., Panjab.	Ishar Dass	Akbar, (*m.*), 30, *Propman.*	Coal	Deceased was withdrawing timber when a piece of the side of the gallery fell upon him. The case at first was not thought serious, but the patient died about six weeks afterwards, probably, from internal injuiries.
59	28th August, 3 P.M.	Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Kurkend Coal Co.	Churnah Mahato, (*m.*), 25, *Miner.*	Coal	Deceased was engaged in getting down overhanging coal from a pillar in a pillar cutting area when about two tons fell. He was struck on the head and sustained injuries from which he died within the hour. Inspection and inquiry made.
60	31st August, 11 A.M.	West Ledo Valley Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Chuni, (*m.*), 34, *"Opening" man.* Chandra Bahadur Lama, (*m.*), 26, *Sirdar.*	Coal	During a temporary stoppage of work the two deceased were sitting down at the entrance to a "chamber" 33′×21′×20′ high, when a mass of coal, weighing about one and-a-half tons fell from the side and killed them on the spot. Inspection and inquiry made.
61	11th September, 11-45 A.M.	North Kustore Mine, Kusunda P. O., Bihar and Orissa.	Kusunda and Nayadi Collieries, Ld.	Nissu Harin, (*f.*), 13, Sarada Harin, (*f.*), 14, *Coal-carriers.*	Coal	As the two deceased were carrying out coal to load a tub, about three tons of side coal fell without warning, killing them instantly. The cohesion of the mass that fell had been destroyed by the roof coal being cut a few days previously, and support should have been afforded. Inspection and inquiry made.
62	8th October, 1 A.M.	East Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Badal Kol, (*m.*), 42, *Miner.*	Coal	Deceased went into an unfenced gallery of a pillaring district to bring down some top coal. Whilst so doing, a piece of coal, two cubic feet in size, and weighing about one and a half cwts. fell upon his head and killed him instantly. Inspection and inquiry made.
63	8th October, 4 P.M.	Jamadoba Mine, Jamadoba P. O., Bihar and Orissa.	Indian Collieries Syndicate, Ld.	Saida Bilaspuri, (*m.*), 35, *Coal-cutter.*	Coal	Deceased and a companion were told to cut floor coal in a gallery in a pillar cutting district. During the absence of the sirdar deceased went behind a fence to rob the side of a pillar. Whilst so doing, a mass of coal, measuring 4′ 6″×2′ 4″×8″ thick and weighing abont 2 cwts. fell upon him and broke his spine, an injury from which he died four hours later. Inspection and inquiry made.

64	13th October, 6-30 A.M.	Barari Mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Kashi Korin, (*f.*), 30, *Coal-carrier.*	Coal	Deceased was employed in loading small coal, and contrary to orders, entered a gallery fenced off on account of loose and dangerous sides. Whilst there, she was knocked down and killed on the spot by the fall of about a ton of coal from the side. Inspection and inquiry made.
65	15th October, 10-30 A.M.	Bansdeopur Mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co.	Bisni Bhuiani, (*f.*), 13, *Carrier.*	Coal	Deceased was loading coal in a gallery of a pillar cutting district. Whilst so engaged, a mass of coal, measuring 10′×8′×2′ thick, fell from a side of an adjacent pillar. A warning was shouted by the sirdars in charge but deceased, instead of running out of the gallery, ran into the falling coal. Her body was recovered ten minutes later, but life was then extinct. Inspection and inquiry made.
66	17th October, 12 noon.	Thingandon Mine, Tavoy P. O., Burma.	Tavoy Concessions, Ld.	Thee Yin, (*m.*), 16, *Coolie.*	Wolfram	Deceased was working with two other coolies in a small open cutting on a reef, when about a ton of stones and earth fell on him from the side and from a height of about 10 feet and killed him.
67	24th October, 4 P.M.	Hermyingyi Mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Shwe Tha, (*m.*), 27, *Miner.*	Wolfram	Deceased was working on a reef in an open cutting, sitting down and using a crowbar. About a ton of earth fell from the surface 12 feet above him and buried him. When dug out he was found to be dead.
68	30th October, 10 P.M.	Titulmuri Mine, Sijua P. O., Bihar and Orissa.	Titulmuri Collieries, Ld.	Sama Bhuia, (*m.*), 28, *Miner.*	Coal	Deceased left his appointed working place, during the absence of the sirdar, to cut floor coal in an adjacent gallery. Whilst so engaged, a mass of coal, weighing approximately three tons, fell from off the pillar side. He was killed on the spot. Inspection and inquiry made.
69	21st November, 2-30 P.M.	Phularibad Mine, Jharia P. O., Bihar and Orissa.	Khas Jharia Coal Co.	Bhattu Bhuia, (*m.*), 35, *Coal-cutter.*	Coal	Deceased passed through a fence into discontinued workings and began to rob coal from the corner of a pillar. Whilst so engaged about one and a half tons of coal fell upon him from the side at a height of 10 feet. He died an hour later. Inspection and inquiry made.
70	30th November, 11 A.M.	Hermyingyi Mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Ah Chong, (*m.*), 27, *Miner.*	Wolfram	Deceased was working on a reef in an open cut when about two tons of earth and stone fell upon him from a height of about 8 feet, killing him instantly.
71	11th December, 11 P.M.	Aldih Mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Patan Singh, (*m.*), 12, *Coal-filler.*	Coal	Deceased was filling coal in a gallery. Whilst so doing, a piece of side coal, lying between two "slips," and weighing about 70 lbs., fell upon him from a height of about 5 feet. Deceased complained only of a pain in his chest and was able to proceed home, but died thirteen hours later from shock. Inspection and inquiry made.
72	17th December, 2 P.M.	Borjan Mine, Behubor P. O., Assam.	Nazira Coal Co., Ld.	Kadir Dhat Mekrani, (*m.*), 28, *Coal-cutter.*	Coal	Whilst deceased was at work in a level 6 feet high by 6 feet wide a mass of stone, measuring 3′×1′ 6″×8″ thick, fell from the side on him. He was pinned down with his face on the floor and when extricated, ten minutes later, he was dead. Inspection and inquiry made.
73	19th December, 6-40 A.M.	Khost Mine Khost P. O., Baluchistan.	North-Western Railway	Jiwan, (*m.*), 15, *Carpenter's coolie.*	Coal	Deceased was sitting or lying on the goaf in the coal face which was secured by a line of props, backed by corrugated sheets. One prop broke suddenly and the prop, a sheet, and about one and a half cwts. of coal fell upon him, killing him instantly.
74	24th December, 4-30 P.M.	Kalonta Mine, Tavoy P. O., Burma.	Tavoy Concessions, Ld.	Dhaman Thapa, (*m.*), 22, *Coolie.*	Wolfram	About three tons of earth fell from the side of an open cut on to deceased. There were no visible injuries and his death was probably due to internal injuries. The fall was due to the heavy rain which fell the night previous.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*concld.*			
			(*b*) Falls of side—*concld.*			
75	30th December, 12-45 P.M.	Charanpur Mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ld.	Somi Kolin, (*f.*), 13, *Loader.*	Coal	Deceased was loading coal when a piece of coal, measuring 4′ 6″ × 9′ × 2′ thick, fell from a height of 5 feet, from a break formed in the course of working and killed him instantly. It is possible that a miner working close by accelerated the fall and the pillars were being extracted in an irregular manner. Inspection and inquiry made.
76	31st December, 4-30 P.M.	Sodepur Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Dhanraj Rajwar, (*m.*), 40, *Miner.*	Coal	Deceased holed, against orders, to a glassy face in the vicinity of a "fault" and brought down upon himself a triangular piece of coal, measuring 12′ 9″ × 4′ 6″ × 8″ high. He was killed outright. Inspection and inquiry made.
			IN SHAFTS—(*22 deaths*).			
			Overwinding—(*3 deaths*).			
77	8th August, 0-10 A.M.	Charanpur Mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ld.	Dewan Khan, (*m.*), 36, *Onsetter.* Kadu Roy, (*m.*), 30, *Assistant Onsetter.*	Coal	Just after an undisclosed overwind had taken place about midnight the two deceased entered the cage which was standing at the surface. They were lowered a few feet when the rope became detached from the capel and the cage dropped a distance of 251 feet to the shaft bottom. The overwind had caused the rings of the capel to be loosened. They were killed instantly. Inspection and inquiry made.
78	30th November, 11-30 A.M.	Rakha Hills Mine, Rakha Mines P. O., Bihar and Orissa.	Cape Copper Co., Ld.	Parosa, (*m.*), 35, *Underground coolie.*	Copper	A winding engineman, having received a signal to lower the skip down a shaft, raised it instead up into the sheaves. The bridle nuts were sheared and the skip ran wild down the skipway, killing deceased, who was working in the sink, at a depth of 145 feet. Three other persons were injured. Inspection and inquiry made. *See Report, page 7.*
			Ascending or descending by machinery—(*4 deaths*).			
79	29th June, 7-30 A.M.	Toposi Mine, Toposi P. O., Bengal.	Bansra Coal Co., Ld.	Rakhal Karmakar, (*m.*), 37, *Fitter mistri.*	Coal	Deceased with four other men, was descending a shaft when a guide rope broke, and this caused the cage to tilt at one end. Deceased fell out of the cage to the bottom of the shaft about 100 feet below and was killed instantly. Inspection and inquiry made.
80	5th July, 5 P.M.	Pahargora Mine, Samdih P. O., Bengal.	F. W. Heilgers and Brothers.	Mahindi Muchi, (*m.*), 22, *Fireman.*	Coal	Deceased and three other men were being wound up a pumping shaft in a bucket by means of a steam winch. When within 3 feet of the surface, three coils of the winding rope slipped off the drum and the bucket dropped back in the shaft for a distance of about from 10 to 13 feet. Deceased was flung out of the bucket and fell to the bottom of the shaft and was killed. His body was recovered two days later. Inspection and inquiry made.
81	9th August, 4 A.M.	Kendwadih Mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Rambakash Kurmi, (*m.*), 30, *Trolleyman.*	Coal	Deceased while being raised in a shaft 108 feet deep fell out of the cage to the shaft bottom and was killed. It was alleged that he fainted from the effects of smoking Ganja. The cage was not fitted with gates or safety bars or even with the usual hand-rail. Inspection and inquiry made.

82	16th September, 6 A.M.	Rakha Hills Mine, Rakha Mines P. O., Bihar and Orissa.	Cape Copper Co., Ld.	Raghunath, (*m.*), 39, *Underground mistri.*	Copper	On the arrival of the skip at the top of a shaft, deceased was discovered in the skip. He was quite dead and had sustained severe injuries. It is probable that he put his head out of the skip as it was taking the curve where the shaft passes from the vertical to the underlay. He had been riding in the skip against explicit orders. Inspection and inquiry made.
			Falling into shaft from the surface—(*2 deaths*).			
83	14th February, 4-30 P.M.	Mayo Mine, Chanda P. O., Central Provinces.	Mullah Hasanally Nathuboy.	Sadashu Kunbi, (*m.*), 40, *Sinker.*	Coal	As deceased was being hoisted out of a shaft in a shallow iron bucket he let go the rope when he had reached a distance of about 8 feet from the pit top. He fell to the bottom of the shaft a distance of about 60 feet and was killed. Inspection and inquiry made.
84	1st March, 9 P.M.	North Singaran Mine, Toposi P. O., Bengal.	Upper India Coal Co.	Kunti Baurin, (*f.*), 50, *Rassi kamin.*	Coal	Deceased who was employed as a rope puller at a sinking pit which was 50 feet deep, fell down the pit at night while work was stopped for the evening meal. She died in a few minutes. The front of the pit was unfenced. Inspection and inquiry made. Prosecution initiated against manager. *See Report, page 13.*
			Falling from part of the way down—(*3 deaths*).			
85	14th February, 3 P.M.	Sodepur 9 and 10 pits Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Teku Meah, (*m.*), 38, *Stone cutting sirdar.*	Coal	While a cage was at rest at a landing, situated 400 feet from the surface in a shaft 912 feet deep, and after some pumpmen had left the cage and entered the landing, deceased who was a stone-cutting sirdar and who had remained behind in the cage apparently lifted the fence bar and attempted to enter the landing. He missed his footing and fell to the bottom of the shaft being killed instantly. Inspection and inquiry made.
86	27th March, 10 A.M.	Jibutil Mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Vaniyambadi Munuswami, (*m.*), 30, *Contractor's coolie.*	Gold	As deceased, who had been working in a sink was climbing out of it on a ladder, he fell from the ladder, a distance of about 20 feet and was killed.
87	3rd June, 6 P.M.	Banksimulla Mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ld.	Ganpatia Mahato, (*m.*), 35, *Gallery driver.*	Coal	Deceased had been working with another miner in a gallery near a landing in a shaft, which was 100 feet up from the shaft bottom. Whilst his companion continued working he went towards the shaft to get into the cage. He evidently made a mistake as to which cage was at rest at the landing and falling down the shaft was killed. The shaft was properly fitted with signals, landing boards and fences. Inspection and inquiry made.
			Things falling from the surface—(*4 deaths*).			
88	2nd March, 4 A.M.	Loyabad Mine, Bansjora P. O., Bihar and Orissa.	Parakar Coal Co., Ld.	Kangu Kahar, (*m.*), 50, Durjan Gope, (*m.*), 18, *Sinkers.*	Coal	The top of a sinking pit, 60 feet deep was fitted with two sinking doors. The trolley was laid along the line of these doors instead of across it. The banksman shouted to the trolleyman to push the trolley over the pit, apparently forgetting that the doors were open. The trolley and bucket consequently fell down the pit and killed the two deceased. Two other men were injured. There were fifteen men in the shaft. Inspection and inquiry made and prosecution initiated against the manager. *See Report, pages 8 and 14.*
89	2nd August, 12-15 P.M.	Jamuria Mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Chhedi Singh, (*m.*), 24, *Timbering coolie.*	Coal	Deceased had been helping to load timber into a cage at the bottom of a shaft 187 feet deep. Whilst a loaded cage was being drawn to the surface one of the props struck the bunton supporting the "keps" and fell down the shaft. Deceased was standing outside the bottom protection boards, drinking from a stream of water which falls in the shaft, when the prop fell upon his head and killed him instantly. Inspection and inquiry made.
90	18th October, 3 A.M.	Alkusa and Kiska Mine, Kusunda P. O., Bihar and Orissa.	Kanga & Co.	Etwari Dosadh, (*m.*), 35, *Onsetter.*	Coal	The deceased, an onsetter, had loaded a cage and was placing the check bar in position when a piece of coal, about a 4½" cube in size, fell from the cage at the surface upon his head, causing a fracture of the skull, an injury from which he died two and a half hours later. Inspection and inquiry made.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			IN SHAFTS—*concld.*			
			Things falling from part of the way down—(*2 deaths*).			
91	7th November, 9·30 A.M.	Butaria Mine, Pench P. O., Central Provinces.	H. V. Low & Co.	Buksu Jaswa, (*m.*), 40, *Miner.*	Coal	Deceased was working at the bottom of a shaft 46 feet deep when a piece of clay, weighing about 30 lbs., fell from a clay bed 3 feet thick, which was situated 6 feet from the surface and struck him with such force that he died from his injuries an hour later. Inspection and inquiry made and prosecution initiated against manager.
92	7th December, 6 A.M.	Raghunathbati Mine, Sitarampur P. O., Bengal.	Sudihi Coal Co., Ld.	Burra Abdul Sheik, (*m.*), 30, *Fitter's coolie.*	Coal	Deceased and a companion were ascending a shaft in an open bucket when a piece of stone fell from the lip of a gallery of an intermediate seam into the bucket and fractured deceased's neck and skull. He died twelve hours later. Inspection and inquiry made.
			Miscellaneous—(*4 deaths*).			
93	5th January, 10 A.M.	Simlabahal Mine, Jharia P. O., Bihar and Orissa.	Bhalgora Coal Co., Ld.	Jamahir Singh, (*m.*), 23, Dhanukdhari Singh, (*m.*), 50, *Sinkers.*	Coal	The two deceased were standing on a pump scaffold in a sinking shaft at a depth of 200 feet. The scaffold, pump and three ranges of pipes, weighing about 3 tons and 3 cwts., were suspended in the shaft by a rope attached directly to the barrel of a single purchase crab winch geared at 24 to 1. While eight men were exerting power at the handle, the winch, the driving axle and both handles broke. The scaffold, etc., fell to the bottom of the shaft 60 feet below. Jamahir was killed on the spot and Dhanukdhari died from his injuries a few days later. Inspection and inquiry made. *See Report, page 8.*
94	22nd July, 7·30 A.M.	Bhagaband Mine, Jharia P. O., Bihar and Orissa.	Borrea Coal Co., Ld.	Parmeshwar Singh, (*m.*), 25, *Onsetter.*	Coal	Deceased was an ensetter and was found dead under the cage. It is not known how he came to be there. Inspection and inquiry made.
95	9th October, 10·45 A.M.	North Anantapur Mine, Morriston P. O., Madras.	North Anantapur Gold Mines, Ld.	Bangalore Joseph, (*m.*), 18, *Timber foreman's messenger.*	Gold	Deceased was sent up a shaft a few feet above the 55 foot-level in order to lubricate the pump rods. He appears to have climbed into the skip ropes with the result that he was caught by a descending skip and killed.
			SUFFOCATION BY GASES—(*1 death*).			
96	Unknown.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Unknown, (*m.*), 32	Coal	Deceased's body was found whilst reopening an area of working which had been damned off for nearly two months. Identification was not possible. No person had been missed. Inspection and inquiry made.
			EXPLOSIVES—(*16 deaths*).			
97	27th January, 1 P.M.	Thorua Mine, Kodarma P. O., Bihar and Orissa.	Tata Sons & Co.	Talu Burhi, (*m.*), 35, *Sinker.*	Mica	Deceased and another miner were drilling a hole in a shaft 95 feet deep when a charge of dynamite exploded. Deceased was so severely injured that he died sixteen hours later. The other miner was also injured. The hole had penetrated an old shot hole that contained dynamite as the result of a miss-fire. The miss-fire was not suspected as the shot-firer claimed to have counted the full number of shots. Inspection and inquiry made.

98	20th March, 1 P.M.	Balaghat Mine, Balaghat P. O., Central Provinces.	Central Provinces Prospecting Syndicate, Ld.	Sitaram Lodi, (*m.*), 20, Brijlall Marar, (*m.*), 30, *Shaft workers.*	Manganese	The two deceased were drilling in a socket left by a previous round of shots at the bottom of a prospecting shaft. This hole did not appear to have been fired at all, and there was probably a whole cartridge of geliguite left in it. It exploded, killing Sitaram outright and causing injuries to Brijlall from which he died an hour and a half later. The following day a primer cartridge was discovered among the *débris* loaded out after the previous round of shots. The shots were fired electrically in series and it is evident that the wires of the detonator in the primer had been short circuited and so it was not exploded. The detonator exploded afterwards when tried. Five other men were in the shaft bottom. Inspection and inquiry made.
99	26th April, 7-15 A.M.	Rakha Hills Mine, Rakha Mines P. O., Bihar and Orissa.	Cape Copper Co., Ld.	Nanu Nair, (*m.*), 32, Narayan Nair, (*m.*), 22, Gopal Nair, (*m.*), 26, *Miners.*	Copper	A miss-shot exploded during drilling operations at the face of an inclined shaft, killing Nanu Nair and Narayan Nair outright and injuring two others, one of whom Gopal Nair, died two days later. A diligent search had been made for the miss-shot, but without success and the man in charge ultimately decided to regard it as a miss-count. Inspection and inquiry made.
100	16th May, 9-15 A.M.	Pootki Mine, Bansjora P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Ramlal Dosadh, (*m.*), 22, Ramdhani Dosadh, (*m.*), 24, Satua Dosadh, (*m.*), 18, *Stone-cutters.*	Coal	Whilst seven persons were at work in a narrow gallery an accidental ignition of gunpowder took place and they were all burnt. The three deceased died two days later. Inspection and inquiry made.
101	16th June, 6 P.M.	Central Dharmaband Mine, Katrasgarh P. O., Bihar and Orissa.	Central Dharmaband Coal Co., Ld.	Bansi Ahir, (*m.*), 28, *Stone-cutter.*	Coal	By the premature explosion of one out of a round of eight shots deceased was so badly injured that he died in two hours. It is suspected that he and not the authorised shot-firer was firing the shots. Inspection and inquiry made.
102	24th July, 6-30 P.M.	Mayo Mine, Jhelum P. O., Panjab.	Government of India	Fatteh Mahomed, (*m.*), 22, Lal Din, (*m.*), 26, Karam Din, (*m.*), 25, Ahmed Din, (*m.*), 28, Rajwali, (*m.*), 25, *Miners.*	Salt	Whilst a gang of fourteen miners were at work in the end of a tunnel an explosion of some 20 lbs. of country gunpowder contained in a tin-canister took place. Seven men were severely burnt, and the five deceased succumbed to their injuries within a few days. The exact cause of the ignition could not be ascertained, but it was probably due to the careless handling of lights whilst shot holes were being charged or to a spark from a "*luka*" found afterwards near the powder canister. Inspection and inquiry made.
103	7th December, 7-40 A.M.	Kathe Mine, Mogok P. O., Burma.	Burma Ruby Mines, Ld.	Ai Oo, (*m.*), 39, *Driller.*	Ruby	Deceased was drilling in an old shot hole which must have contained a part of a previous charge. This exploded and killed him.

IRRUPTIONS OF WATER OR FALLING INTO WATER—(*8 deaths*).

104	9th April, 8-13 A.M.	Sripur Mine, Kalipahari P. O., Bengal.	Lodna Colliery Co., Ld.	Bison Gope, (*m.*), 35, *Stone-cutter.*	Coal	While alighting from a bucket at the bottom of a sinking shaft, 960 feet deep, deceased failed to reach a platform 13 inches away and fell between the bucket and the platform into the sump, which was 15 feet deep and full of water. In falling he must have injured his head and caused unconciousness. His body was recovered shortly afterwards. Artificial respiration was applied but without success. Inspection and inquiry made.
105	2nd July, 7-30 A.M.	Bejdih Mine, Sitarampur P. O., Bengal.	Equitable Coal Co., Ld.	Radha Raman Ray, (*m.*), 27, *Mining sirdar.*	Coal	Deceased, against the orders of his superiors, entered the gallery connecting Nos. 2 and 3 pits. While he was there the gallery was flooded by water released at No. 2 pit by previous arrangement and he was drowned. His body was recovered half an hour later. Inspection and inquiry made.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			IRRUPTIONS OF WATER OR FALLING INTO WATER—*concld.*			
106	26th July, 5 P.M.	Sukli Mine, Dongri P. O., Central Provinces.	Central India Mining Co., Ld.	Tijana, (*f.*), 12, *Coolie.*	Manganese	Deceased was found drowned in a shaft which was an extension of an old excavation. She had probably gone there for the purpose of drinking or washing.
107	5th November, 4 A.M.	Tadaiya Mine, Domchanch P. O., Bihar and Orissa.	Johur Mull Sundur Mull	Gokul Meah, (*m.*), 40, Bija Singh, (*m.*), 25, Dilu Gope, (*m.*), 25, Churu Meah, (*m.*), 25, *Miners.* Jaman Gope, (*m.*), 30, *Coolie.*	Mica	While about sixty persons were present underground, a quantity of water, that had been impounded in some old workings, burst into the mine and flooded the dip workings. Of the above number twenty-eight men and women were submerged. Of these twenty-three were successful in making good their escape, but that of the five deceased was cut off and they were drowned. Inspection and inquiry made. *See Report, page 9.*
			HAULAGE—(*21 deaths*).			
108	2nd January, 2 A.M.	South-East Baraboni Mine, Charanpur P. O., Bengal.	Maharaja M. C. Nandi	Mangal Manjhi, (*m.*), 20, *Banksman.*	Coal	A set of eight empty tubs were pushed over the brow of an incline without being attached to the rope and deceased was caught and run over. He died almost immediately. Inspection and inquiry made.
109	20th February, 11-30 P.M.	Mudidih Mine, Sijua P. O., Bihar and Orissa.	Reliance Coal Co., Ld.	Mangal Rajwar, (*m.*), 25, *Hookman.*	Coal	Whilst a train of three tubs was being drawn up an incline a coupling shackle broke. The last tub ran wild down the incline and striking deceased inflicted an injury to the skull from which he died on the following day. The breaking of the shackle was due to a serious flaw in its construction. Inspection and inquiry made.
110	23rd February, 11 A.M.	Aldih Mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Khellu Dosadh, (*m.*), 45, *Pulley greaser.*	Coal	Deceased was greasing a friction roller, while a set of four empty tubs was descending an incline. It is surmised that in stepping out of the way of the set, he missed his foothold on the sloping ballast and fell forward under the leading tub. He was killed outright. Inspection and inquiry made.
111	28th February, 2-30 P.M.	Dishargarh Mine, Dishargarh P. O., Bengal.	Equitable Coal Co., Ld.	Bonomali Bauri, (*m.*), 32, *Rail coolie.*	Coal	Through failing to give the signal to stop in time at the top of an underground haulage plane, a loaded set collided with a buffer and broke the rope. The set thus released ran back and became derailed at the points. Continuing forward it crashed into a prop behind which deceased had taken refuge, knocking it out and breaking his leg. He died three hours later from hæmorrhage and shock. The lighting at the top of the plane was by safety lamps only and the signalling arrangements were primitive. Inspection and inquiry made. *See Report, page 9.*

112	5th March, 2 P.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Jowahir Passi, (*m.*), 40, *Trammer.*	Coal	Deceased went to sleep by the side of a tub road with his feet resting on the rails. A loaded tub was pushed out and ran over both feet inflicting injuries from which he died three months later. Inspection and inquiry made.
113	11th March, 6-15 A.M.	Sodepur No. 10 Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Dukhu Mullick, (*m.*), 22, *Trolleyman.*	Coal	A loaded tub ran wild through the failure to couple it to a set that was about to be lowered in a jig. Deceased, who was in charge of the jig bottom, and heard the tub coming, withdrew a short distance into a level, but not far enough to prevent his leg being caught by the tub and fractured. He was hurled across the road and sustained also a fracture of the skull which resulted in his death twenty-nine hours later. Inspection and inquiry made.
114	4th April, 4-30 A.M.	Barari Mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Madan Manjhi, (*m.*), 30, *Hookman.*	Coal	A train of empty tubs was being lowered rapidly down a haulage slope and into a level, when deceased in attempting to sprag the leading tub, slipped and fell under it. He died from his injuries five weeks later. Inspection and inquiry made.
115	15th April, 10 A.M.	Lakorka Mine, Katrasgarh P. O., Bihar and Orissa.	Lakorka Coal Co., Ld.	Khedon Sheik, (*m.*), 35, *Miner.*	Coal	Owing to the carelessness of the tubman four tubs were allowed to run wild down an incline. They dashed into a small sump, 40 feet beyond the end of the rails, breaking the suction pipe of a pump. Deceased who was dressing side coal at the point had his thigh fractured by the broken pipe. As a result of the accident double pneumonia set in and he died six days later. Inspection and inquiry made. *See Report, page 10.*
116	1st May, 4-30 A.M.	Jamadoba Mine, Jamadoba P. O., Bihar and Orissa.	Indian Collieries Syndicate, Ld.	Rupia Ghatwarin, (*f.*), 30, *Coal-carrier.*	Coal	Whilst deceased was crossing an endless rope haulage road, carrying a pan of lighted coal, she was knocked down by a tub. She may have been half asleep, or perhaps the smoke from the pan blinded her. There was a proper road which she ought to have used. She died five days later from blood-poisoning. Inspection and inquiry made.
117	25th May, 11-30 P.M.	Joyramdanga Mine, Asansol P. O., Bengal.	New Birbhum Coal Co., Ld.	Dharam Hazra, (*m.*), 40, *Hookman.*	Coal	A set of six empty tubs was being lowered too rapidly down an incline. The engine-man suddenly tightened the rope with the consequence that the ensuing jerk caused a link to break between the third and fourth tubs. The leading four tubs ran wild and severely injured deceased, who was stationed at No. 4 east level. He died from his injuries within a few hours. Inspection and inquiry made.
118	23th June, 11-30 A.M.	Sodepur Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Shaheb Singh, (*m.*), 50, *Tindal coolie.*	Coal	A return wheel was being taken up a self-acting incline, rising 1 in 6 and 800 feet in length. A set of five tubs, three and a half of which were loaded, formed the balancing load. The deceased was one of a gang of coolies, under a sirdar in charge of the balance load. Orders had been given that, should the set stop, it had to be restarted by pushing the tubs; on no account had any one to jump on the couplings between the tubs. Deceased disobeyed these orders and the set getting out of control dashed into a "dead end." He was caught between the tubs receiving abdominal injuries from which he died two days later. Inspection and inquiry made.
119	31st July, 10-30 A.M.	Titulmuri Mine, Sijua P. O., Bihar and Orissa.	Titulmuri Collieries, Ld.	Sothe Roy, (*m.*), 47, *Miner.*	Coal	Deceased was in the main dip when a set of tubs ran wild. He tried to get into the landing but was caught and crushed against the corner of a pillar and killed outright. The set was provided with a bar-hook which acted properly as it threw the tubs off the line, but the tubs were carried down on their sides against the pillar. Inspection and inquiry made.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			HAULAGE—*concld.*			
120	19th August, 2 P.M.	Kusunda Mine, Kusunda P. O., Bihar and Orissa.	Patel & Co.	Gajndhar Sow, (*m.*), 20, *Hookman.*	Coal	Deceased was a hookman at a haulage incline and was riding on the front of a full set of tubs. In getting off he evidently miscalculated his distance, and getting off too late was fatally crushed between the set and the side of the road. The practice of riding on the tubs should not have been allowed. Inspection and inquiry made. *See Report, page 10.*
121	22nd August, 8 A.M.	West Ledo Valley Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Fakir Mekrani, (*m.*), 25, *Coal-cutter.*	Coal	Deceased was riding on a train of loaded tubs drawn by a locomotive. Whilst the train was passing through a tunnel he fell off and sustained injuries to which he succumbed a month later. Inspection and inquiry made.
122	30th August, 5 A.M.	Jogta Mine, Sijua P. O., Bihar and Orissa.	Agabeg Bros.	Kokil Bhuia, (*m.*), 25, *Trolleyman.*	Coal	Deceased in trying to get out of the way of a runaway tub on a haulage incline fell and sustained a fractured skull. He never recovered consciousness and died five days later. Inspection and inquiry made.
123	8th September, 9-30 P.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Manik Hazam, (*m.*), 50, *Trolleyman.*	Coal	Deceased was engaged in lifting a derailed tub when a set of five empty tubs which had been arrested a short distance away on a grade of 1 in 8 by means of wedges, overran the latter and collided with the derailed tub. He was pinned against the side of the road, and sustained injuries from the effects of which he died an hour later. Inspection and inquiry made.
124	19th September, 9 A.M.	Mohpani Mine, Mohpani P. O., Central Provinces.	Great Indian Peninsula Railway.	Budha Katia, (*m.*), 30, *Carpenter's coolie.*	Coal	During the absence of the mate deceased went through a fence into an incline. He was caught by an empty set of tubs and died almost immediately.
125	16th October, 10-30 A.M.	West Ledo Valley Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Basha Kachi, (*m.*), 26, *Trammer.*	Coal	Deceased had been employed in pushing tubs on a narrow tram road for some months. On this occasion he shouted to the other trammer to push a tub past him. He crouched on one side of the road to let the tub pass. There was room for him and presumably he thought he was clear, but the tub struck him in passing and the blow broke his neck and killed him immediately. Inspection and inquiry made.
126	23rd October, 11-30 A.M.	New Tetturia Mine, Katrasgarh P. O., Bihar and Orissa.	New Tetturia Coal Co., Ld.	Lalji Bhuia, (*m.*), 25, *Trolleyman.*	Coal	As a train of eleven empty tubs was being lowered down an incline, in some way or other the leading two became detached and ran wild. One of them ran over deceased who was standing at the junction of the main incline with a branch level, waiting for the set to come down. He sustained a wound from which he died within half an hour. Inspection and inquiry made.
127	2nd November, 8-30 A.M.	Khost Mine, Khost P. O., Baluchistan.	North-Western Railway	Karim Din, (*m.*), 18, *Carpenter's coolie.*	Coal	A set of empty tubs was being lowered into an incline. Deceased was standing at a landing and he expected that the set would stop there for himself and others to get in and be drawn out of the mine. He attempted to get into the set before the set was stopped and his neck was squeezed between the

						top of the tub and a landing plant about four inches above. He died in a few minutes.
128	26th December, 11-30 A.M.	Jamgram Mine, Panuria P. O., Bengal.	Barakar Coal Co., Ld.	Dhani Korin, (*f.*), 50, *Loader.*	Coal	Owing to the inability of the trammer to insert a second sprag a loaded tub ran wild down a grade of 1 in 11 and collided with some empty tubs standing at a shaft bottom. These tubs struck deceased and carried her on to the sump board. She sustained internal injuries from the effects of which she died two hours later. Inspection and inquiry made.
			SUNDRIES UNDERGROUND.—(*10 deaths*).			
129	12th January, 10 A.M.	Pagaye Mine, Tavoy P. O., Lower Burma.	Rangoon Mining Co., Ld.	Ah Swe, (*m.*), 25, *Quarryman.*	Wolfram	Whilst working on the face of a quarry 100 feet deep the deceased slipped and fell a distance of 20 feet, sustaining injuries from which he died in hospital ten days later. Inspection and inquiry made.
130	4th April, 8-30 P.M.	Charanpur Mine, Charanpur P. O., Bengal.	Apcar & Co.	Longra Bauri, (*m.*), 28, *Timber mistri.*	Coal	Deceased, a sirdar, and another timber mistri were watching the roof while a prop was being withdrawn from a goaf. As the roof began to "weight" the sirdar gave orders for every one to leave the gallery. Deceased in running out slipped up a small embankment and falling fractured his jaw. Concussion of the brain ensued and he died two days later. Inspection and inquiry made.
131	10th April, 3 P.M.	Jibutil Mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Kunji Ahmed, (*m.*), 25, *Hand jumper coolie.*	Gold	Deceased stepped on some drills. He slipped and fell down an almost vertical winze about 70 feet deep and was killed.
132	3rd May, 2 P.M.	Dishargarh Mine, Dishargarh P. O., Bengal.	Equitable Coal Co., Ld.	Guhiram Bauri, (*m.*), 24, *Onsetter.*	Coal	Deceased had removed the binding tape covering a joint in an electrical cable. In attempting to recover the joint with string and tape he received a shock which caused his death. Inspection and inquiry made.
133	22nd September, 10-10 A.M.	Sodepur Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Bhusan Bauri, (*m.*), 35, *Pump khalasi.* Raman Bauri, (*m.*), 25, *Fitter.* Udoy Bauri, (*m.*), 25, *Fitter's coolie.*	Coal	The deceased were engaged in repairing a joint in the delivery pipe of an electric pump when a piece of side coal fell in a gallery and brought one of the electric conductors into contact with the earth wire. The current went to earth partially or wholly through the delivery pipe and the bodies of the men. Death appears to have been instantaneous. Two of the deceased received a shock first and the third while attempting to rescue them in which operation a fourth man was rendered unconscious but recovered. Inspection and inquiry made. *See Report, page 11.*
134	26th October, 2 A.M.	Khost Mine, Khost P. O., Baluchistan.	North-Western Railway.	Attar Khan, (*m.*), 20, *Carpenter's coolie.*	Coal	Deceased was sitting on a pack wall of a shoot stenton. Apparently he was asleep for he fell off into the goaf a distance of about 30 feet down at an angle of 50 degrees. He died thirty-two hours later from injuries received.
135	19th November, 8-30 A.M.	Khost Mine, Khost P. O., Baluchistan.	North-Western Railway.	Sant Singh, (*m.*), 25, *Tram munshi.*	Coal	Deceased was crouching by the side of the road to let a tub pass and he was killed by his head being pinched between the tub and a prop. One trammer with a similar tub had passed him safely a moment before. The second trammer apparently warned the deceased who shouted to him to come on.
136	26th November, 6 A.M.	Chinchuria Mine, Asansol P. O., Bengal.	Baraboni Coal Concern, Ld.	Budhari Manjhi, (*m.*), 30, *Miner.*	Coal	While deceased and another miner were pushing a loaded tub over a jig brow a cross-beam on which their lamps were suspended was partially dislodged and the lamps were extinguished. In the confusion which followed deceased slipped on the flat sheets and fell with such force on a tram rail that he sustained a fracture of the base of the skull, and died four hours later. Inspector and inquiry made.

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			SURFACE MACHINERY—(*3 deaths*).			
137	17th May, 9-45 A.M.	Barari Mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Syed Goffur, (*m.*), 45, *Coolie.*	Coal	A cylinder, weighing nearly three tons, was being lifted when one link of the chain of the Weston's Differential pulley block employed broke and the cylinder fell a height of four feet. It rolled over and struck deceased. His spinal column was fractured and he died nearly a month later. Another man sustained a fractured thigh. Inspection and inquiry made.
138	14th October, 12-45 P.M.	North Anantapur Mine, Morriston P.O., Madras.	North Anantapur Gold Mines, Ld.	Narayanasami, (*m.*), 18, *Fitter's coolie.*	Gold	Deceased was employed on a drilling-machine which was operated by a 2-inch belt, driven off the mill line shafting. The machine became jammed and deceased knocked off the belt which was wound round the shafting. He endeavoured to uncoil it without stopping the shafting and was killed by being caught in the belt.
139	9th November, 10 A.M.	South Kustore Mine, Kustore P.O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Dukhan Teli, (*m.*), 18, *Screening plant khalasi.*	Coal	Acting without orders, deceased put his hand on the steel belt of an elevator in order to test its tightness. He was drawn into the machinery and killed on the spot. Inspection and inquiry made.
			ON SURFACE RAILWAYS AND TRAMWAYS BELONGING TO THE MINE—(*3 deaths*).			
140	20th September, 3 P.M.	Tirody Mine, Tirody P. O., Central Provinces.	D. Laxminarayan	Ramadin Kol, (*m.*), 35, *Coolie.*	Manganese	Deceased was recovering some packing stones from a *debris* tip, in order to ballast a tram line at a breach, when a loaded tub was brought along and became derailed, with the result that the contents were discharged on to deceased. He died from his injuries six days later. Inspection and inquiry made.
141	30th October, 8-30 A.M.	Douia Mine, Manharpur P. O., Bihar and Orissa.	Bengal Iron and Steel Co., Ld.	Jhirga, (*m.*), 35, *Station coolie.*	Iron	A "carrier" lost its grip of the hauling rope on an aerial ropeway, unnoticed by the workman it ran into the terminal station, knocked against another "carrier" which was being unloaded with the result that deceased was killed.
142	25th November, 11 A.M.	Rakha Hills Mine, Rakha Mines P. O., Bihar and Orissa.	Cape Copper Co., Ld.	Latchu, (*m.*), 21, *Tram coolie.*	Copper	Deceased was accidently jammed between two trollies which collided on a surface tramway. He was sent to hospital, but refused to stay there and was removed by his friends to his village, where he died a week later.
			MISCELLANEOUS ON SURFACE—(*11 deaths*).			
143	2nd February, 11 A.M.	Balaghat Mine, Dongri P. O., Central Provinces,	Central Provinces Prospecting Synd., Ld.	Sogni Gond, (*f.*), 13, *Earth-worker.*	Manganese	Deceased overbalanced herself as she was throwing a basket of spoil over the waste-heap and rolled to the bottom of the excavation, about 25 feet below, fracturing her skull. Her parents refused to allow her to be taken to hospital and took her away to their own village where she died eight days afterwards. Inspection and inquiry made.

144	26th February, ?	Dheriajoba Mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Pran Mahato, (*m.*), 55, *Loading coolie.*	Coal .	Deceased on a dark and stormy night appears to have climbed over a wall fencing an incline and to have fallen to the bottom of a cutting where his body was afterwards found. Inspection and inquiry made.
145	2nd July, 1·30 P.M.	Lakorka Mine, Katrasgarh P. O., Bihar and Orissa.	Lakorka Coal Co., Ld. .	Kisto Mondal, (*m.*), 55, *Trolleyman.*	Coal . .	Deceased sat down in a window of a haulage engine-house and dozing off to sleep fell a distance of 6 feet on to his head. He injured his brains and died twenty-four hours later. Inspection and inquiry made.
146	17th July 10·30 A.M.	Hermyingyi Mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Hum Kit, (*m.*), 37, Yeng Cheoung, (*m.*), 42, *Sluicing coolies.*	Wolfram .	Tributors were sluicing on the slope of a hill, apparently they turned on too much water with the result that about fifty tons of earth and rock slipped down on to the two deceased and killed them. Another man was injured.
147	9th August, 12 noon.	Byoukchoung Mine, Tavoy P. O., Burma.	Tavoy Concessions, Ld. .	L. B. Worthington, (*m.*), 35, *Mining engineer.*	Wolfram .	Deceased was struck by a falling tree and died the following morning on his way to hospital.
148	10th August, 9 A.M.	East Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld. .	Damri Surri, (*m.*), 35, *Hazri coolie.*	Coal .	While a pulley was being lowered from a temporary head-gear, which was being dismantled, one of the anchor ropes, to which the guy ropes of the derrick were attached, broke and the derrick fell striking deceased on the head and causing injuries from which he died about six hours later. Inspection and inquiry made.
149	18th September, 8·50 P.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Biju Manjhi, (*m.*), 22, *Coolie.*	Coal . .	Deceased, with four others, was assisting to remove the door of a coke oven for repairs when the hook, by which it was suspended, gave way and the door fell upon him. He died a few minutes later from the effects of his injuries. Inspection and inquiry made.
150	21st September, 4·15 P.M.	Sitalpur Mine, Dishargarh P. O., Bengal.	Bengal Coal Co., Ld. .	Sudam Bauri, (*m.*), 34, *Coolie.*	Coal . .	An excavation, measuring 16′×6′ at the top ×7′×3″ deep, was being made in compact earth on the surface when a mass of earth, weighing about 5 tons, slipped from one of the sides and struck deceased on the back killing him instantly. The side was sloped at an angle of only 7½° from the vertical. Inspection and inquiry made.
151	10th October, 2·30 P.M.	Byoukchoung Mine, Tavoy P. O., Burma.	Tavoy Concessions, Ld. .	Cow Shoave, (*m.*). 30, *Coolie.*	Wolfram .	Deceased was killed by the fall of a large tree. He was said to have been working about 90 feet away. Four other coolies were injured.
152	11th December, 5 P.M.	Khaira Mine, Kodarma P. O., Bihar and Orissa.	Tata Sons & Co. . .	Jodhon Modi, (*m.*), 20, *Coolie.*	Mica . .	Deceased, together with another man and woman were engaged in collecting mica from an old waste-heap into which they dug a hole 7 or 8 feet deep. The sides suddenly collapsed and all three were buried. They were taken out alive but deceased expired immediately afterwards probably from shock.

APPENDIX II—*contd.*

Fatal Accidents, 1914—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Reason for exclusion.	Cause of accident and remarks.
			DEATHS NOT INCLUDED IN THE STATISTICS—(*36 deaths*).				
1	18th January, 9 A.M.	Bhelatand Mine, Sijua P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Rameswar Dass, (*m.*), 33, *Sirdar.*	Coal . .	Not a mining accident.	Deceased, using a crowbar, attempted to unram a shot hole charged with dynamite and a detonator. An explosion took place and he was killed on the spot. Inspection and inquiry made.
2	22nd January, 3 P.M.	New Tetturia Mine, Katrasgarh P. O., Bihar and Orissa.	New Tetturia Coal Co., Ld.	Fulia, (*f.*), 3, .	Coal . .	Not employed.	Deceased went to a boiler tank presumably to drink and in stooping over the tank-wall must have overbalanced herself and been drowned. Inspection and inquiry made.
3	28th January, 6 P.M.	Chora Mine, Chora P. O., Bengal.	N. C. Sircar & Co. . .	Mahabir Passi, (*m.*), 3.	Coal . .	Not employed.	A miner took a cartridge of country gunpowder in a tin canister to his house leaving the canister outside the door. He should have taken it straight back to the magazine. Deceased who was his son presumably opened the canister and put the cartridge on the fire, when it exploded causing extensive burns from which he died next morning. Inspection and inquiry made.
4	21st February, 9-30 A.M.	North Anantapur Mine, Morriston P. O., Madras.	North Anantapur Gold Mines, Ld.	Yellamah, (*f.*), 60.	Gold . .	Not employed.	Deceased was standing on a surface tramway and was knocked down and killed by a tram loaded with coal which coolies were pushing. She was said to have been deaf.
5	25th February, 10 P.M.	Kajora Mine, Ondal P. O., Bengal.	Kajora Coal Co. . .	Lakshmi Manjhian, (*f.*), 13, *Coal kamin.* Budhani Manjhian, (*f.*), 4.	Coal . .	Not a mining accident.	The two deceased children were asleep in their hut, when the next hut caught fire owing to a lighted lamp which had been left burning. Their mother and grand-mother who were also in the hut asleep rushed out without them. Lakshmi came out some minutes later extensively burnt from the effects of which she died. Budhani was burnt to death inside and only her charred remains were found. Inspection and inquiry made.
6	6th March, 2 P.M.	Kachidhana Mine, Sansar P. O., Central Provinces.	Indian Manganese Co., Ld.	Bhaga, (*f.*), 65.	Manganese .	Not employed.	When standing on the edge of an excavation she fell into it, a depth of six feet, and received such injuries that she died three hours later.
7	7th March, unknown.	Searsol Mine, Searsol P. O., Bengal.	Rani Shyama Sundari Debi.	Puti Sundri, (*f.*), 11.	Coal . .	Not employed.	Deceased was drowned in an abandoned unfenced shaft. It is surmised that she accidentally fell into it in the dark. Inspection and inquiry made and prosecution instituted against the owner of the estate. *See Report, page 15.*
8	Prior to 13th March.	Bhuskajuri Mine, Asansol P. O., Bengal.	Bhuskajuri Coal Co., Ld.	Sonia Kol, (*f.*), 23, *Coal-carrier.*	Coal . .	Not a mining accident.	Deceased had a quarrel with her husband on Monday evening and her body was found in a well on Friday morning. There was a wall round the well about 2′ 6″ high. It is presumed to have been a case of suicide. Inspection and inquiry made.

9	14th March, 6 P.M.	Kujama Mine, Jharia P. O., Bihar and Orissa.	Busra Coal Co	Ganga Mallah, (*m.*), 7.	Coal	Not employed.	Deceased was on the edge of a quarry where blasting was going on and was struck by a stray stone. He received injuries from which he died six days afterwards. Inspection and inquiry made.
10	31st March, 10 A.M.	Bhatdih Mine, Mohoda P. O., Bihar and Orissa.	Bengal Bhatdih Coal Co., Ltd.	Murti Reldarin, (*f.*), 45.	Coal	Not employed.	Deceased was found drowned in a boiler tank but there was no evidence to show how she came to be there. Inspection and inquiry made.
11	9th April, about noon.	Borrea Mine, Sitarampur P. O., Bengal.	New Birbhum Coal Co., Ltd.	Millo Gopini, (*f.*), 23.	Coal	Not employed.	Deceased was found floating on the water in an old trial shaft which was incompletely fenced. It is presumed she committed suicide. Inspection and inquiry made and prosecution initiated against manager. *See Report, page 14.*
12	21st April, 2 A.M.	Kurkend Mine, Kurkend P. O., Bihar and Orissa.	R. B. Sircar & Sons	Somaria Passi, (*f.*), 26.	Coal	Not employed.	Deceased had been demented for some time. She left her home at midnight and after taking off all her clothes and leaving them on the surface threw herself down a shaft 211 feet deep. She was killed on the spot. Inspection and inquiry made.
13	Unknown, presumably 22nd April.	Jairamdanga Mine, Asansol P. O., Bengal.	New Birbhum Coal Co., Ltd.	Darsani Bania, (*f.*), 65.	Coal	Not employed.	Deceased during a fit of temporary insanity, committed suicide by jumping down a shaft. Inspection and inquiry made.
14	3rd May, 5 P.M.	Golukdih Mine, Jharia P. O., Bihar and Orissa.	N. M. Chowdhury & Co.	Nijam Bilaspuri, (*m.*), 2½.	Coal	Not employed.	Deceased was left alone in a "dhowra" from where he was afterwards missed. His body was discovered subsequently lying in an excavation with his head in water which was about 3 feet deep.
15	4th May, 12 noon.	Baraboni Mine, Asansol P. O., Bengal.	Baraboni Coal Concern, Ltd.	Maku Manjhian, (*f.*), 9	Coal	Not employed.	Deceased, with four companions, went to the quarry to bathe. It is assumed that walking into deep water, she slipped and fell, being drowned before aid could be called. Inspection and inquiry made.
16	6th May, 5-45 P.M.	Kodaigaon Mine, Saonea P. O., Central Provinces.	Indian Manganese Co., Ltd.	Serwarman, (*m.*), 4.	Manganese	Not employed.	Deceased was sitting about 6 feet away from his parents who were quarrying ore, when a fall of earth took place and killed the child.
17	20th May, 11-30 A.M.	Sijua Mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ltd	Gunpatia, (*m.*), 13, *Labourer.*	Coal	Not a mining accident.	Deceased was runover during hand shunting operations on an East Indian Railway Company's siding. He was not employed there but should have been at work 300 yards away. He died four weeks later. Inspection and inquiry made.
18	23rd May, 6-45 A.M.	Borrea Mine, Sitarampur P. O., Bengal.	New Birbhum Coal Co., Ltd.	Ram Gope, (*m.*), 21	Coal	Not a mining accident and not employed.	Deceased, in attempting to jump into the brake-van of a pilot train leaving the colliery, slipped and fell under the wheels of the train. He died immediately afterwards from the effects of the injuries he received. Inspection and inquiry made.
19	27th May, 6-30 A.M.	Kujama Mine, Jharia P. O., Bihar and Orissa.	Khanji and Sanji Nanji	Karu Bhuian, (*m.*), 1½ yr.	Coal	Not employed.	While a train of five tubs was being pushed by hand on a surface tram line the front tub became uncoupled and ran by itself down a straight grade. Deceased, who had strayed on to the line, was runover and sustained injuries which resulted in death an hour later. Inspection and inquiry made.
20	27th May, 3 P.M.	Bhowra Mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ltd.	Rameswar, (*m.*), 9 months.	Coal	Not employed.	Deceased crawled out of the house while his parents were absent and fell into a hole, 10′ square × 2′ deep, full of water, about ten yards away from the house, and was drowned. Inspection and inquiry made.

Fatal Accidents, 1914—*concld.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Reason for exclusion.	Cause of accident and remarks.
			DEATHS NOT INCLUDED IN THE STATISTICS—*concld.*				
21	25th June, 7-5 P.M.	Ena Mine, Dhanbad P. O., Bihar and Orissa.	North-West Coal Co., Ld.	Sobdul Meah, (*m.*), 33, *Fireman.*	Coal .	Not a mining accident.	The body of the deceased was found floating in a fenced boiler tank. It was thought that he was intoxicated when he fell in. Inspection and inquiry made.
22	Unknown, probably 12th July.	South East Baraboni Mine, Charanpur P. O., Bengal.	Maharaja M. C. Nandi .	Malho Manjhian, (*f.*), 20, *Coal-carrier.*	Coal .	Not a mining accident.	Deceased, it is surmised, in attempting to get on to the top of the surrounding wall of a well, or whilst standing upon the top thereof for purpose of drawing water overbalanced and fell in. The body was recovered two days later. Inspection and inquiry made.
23	14th July, 3-40 P.M.	West Ledo Valley Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Ramadhor, (*m.*), 23, *Fireman.*	Coal .	Not a mining accident.	He appears to have died as the result of a blow. His aggressor was convicted of a criminal offence. Inspection and inquiry made.
24	Unknown, prior to 22nd July.	Gobindpur Mine, Katrasgarh P. O., Bihar and Orissa.	Gobindpur Coal Co., Ld.	Benia Telin, (*f.*), 10.	Coal .	Not a mining accident and not employed.	The body of the deceased was found floating in a well near No. 5-11 Incline. It seems to have been a case of suicide as there had been a quarrel on the previous Monday after which deceased was not seen again. Inspection and inquiry made.
25	15th August, 1 A.M.	Chowrasi Mine, Dishargarh P. O., Bihar and Orissa.	Equitable Coal Co., Ld.	Karna Domin, (*f.*), 3.	Coal . .	Not employed.	The body of the deceased was found drowned in a boiler tank, which was not sufficiently fenced. Inspection and inquiry made.
26	20th August, 7 A.M.	Godhur Mine, Kusunda P. O., Bihar and Orissa.	S. B. Raha and Sons.	Unknown, (*m.*), 25.	Coal .	Not a mining accident and not employed.	Deceased was found dead in a small tank 5 feet deep. The *post-mortem* examination revealed the fact that his spleen was ruptured. There was no evidence to show whether deceased came by his death by accident or violence. Inspection and inquiry made.
27	11th September, 11-45 A.M.	Belrui Mine, Sitarampur P. O., Bengal.	New Birbhum Coal Co., Ld.	Karuna Domin, (*f.*), 32.	Coal . .	Not employed.	Deceased while crossing a surface tramway was run over by a tram and killed. Inspection and inquiry made.
28	7th October, 5 P.M.	Balaghat Mine, Dongri P. O., Central Provinces.	Central Provinces Prospecting Syndicate, Ld.	Bhaiyal Lal, (*m.*), 2.	Manganese .	Not employed.	As two loaded wagons were being taken along a tramway, deceased's parents pushing the first wagon, deceased suddenly ran towards them and was run over by the second wagon, sustaining injuries from which he died.
29	10th October, 6 A.M.	Murulidih Mine, Mohoda P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Mungia Kurmin, (*f.*), 11, *Wharf labourer.*	Coal . .	Not a mining accident.	Deceased was underneath a truck helping to push it along a siding. As the truck began to gather speed she attempted to get out from underneath by passing between the front and rear-wheels,

							Whilst so doing her clothes got caught in the rear-wheel and she was dragged along the ground sustaining injuries from which she died in hospital four hours later. Inspection and inquiry made. *See Report, page 12.*
30	12th October, not known.	Searsol Mine, Searsol P. O., Bengal.	Rani Shama Sundari Devi.	Makan Dass, (*m.*), 45, *Village carter.*	Coal . .	Not employed.	Deceased was found drowned in an old shaft which was properly fenced. He was suffering from pneumonia and it is surmised that he committed suicide. Inspection and inquiry made.
31	Unknown, prior to 13th October.	Bhulanbarari Mine, Jamadoba P. O., Bihar and Orissa.	Bhulanbarari Coal Co., Ld.	Unknown, (*f.*), 32.	Coal . .	Not employed.	Deceased was found drowned in the surface cutting of an abandoned incline. Inspection and inquiry made.
32	Not known, prior to 5th November.	Sudriadih Mine, Nowagarh P. O., Bihar and Orissa.	Sudriadih Coal Co., Ld.	Thakuri Bhagat, (*m.*), 12.	Coal .	Not employed.	Deceased went to an old shaft, fenced off, to procure water. It is surmised that whilst so doing he overbalanced himself and fell in. His body was found two days later. Inspection and inquiry made.
33	7th November, 10 A.M.	Joyrampur Mine, Jharia P. O., Bihar and Orissa.	M. V. A. Coal Concern	Bhola Beldar, (*m.*), 12, *Loading coolie.*	Coal . .	Not a mining accident.	Deceased attempted to open the lower door of a covered steel broad-gauge wagon standing on the colliery siding. Whilst so doing, it fell back upon his head, inflicting injuries from which he died within an hour. Inspection and inquiry made.
34	9th November, 5 A.M.	Patiana Mine, Kulti P. O., Bengal.	Nagendra Nath Mandal	Ashu Bauri, (*m.*), 8.	Coal . .	Not employed.	Deceased fell into a shaft 44 feet deep, containing 6 feet of water and was drowned. The shaft top was not completely fenced. Inspection and inquiry made and prosecution initiated against owner.
35	21st November, 9 A.M.	East Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Fulin Baurin, (*f.*), 50, *Domestic servant.*	Coal .	Not employed.	Owing to the collapse of underground workings an area of the surface, measuring 600′ × 300′, subsided to a depth of 8 feet. Deceased was resident in one of three coolie barracks, involved in the subsidence and was killed by falling masonry. Another woman was slightly injured. Inspection and inquiry made.

APPENDIX II—*contd.*

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1914.

Province.	District and mineral field.	Total average number of persons employed daily.	Fatal accidents.				Serious accidents.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
						A.—COAL.							
Bihar and Orissa	Hazaribagh: Bokaro-Ramgarh.	210	...	...	...	...	..	...	...	...	...	...	...
	Hazaribagh: Giridih	8,579	5	9	1	10	15	11	4	15	1·72	·30	1·17
	Hazaribagh: Jharia	376	...	...	...	...	...	...	...	...	...	...	...
	Manbhum, Jharia	74,496	53	58	5	63	61	36	25	61	1·24	·18	·85
	„ Raniganj	5,332	4	5	...	5	1	1	...	1	1·43	...	·94
	Santhal Parganas, Raniganj	30	...	...	...	...	...	...	...	...	...	...	...
	„ Rajmahal	135	...	...	...	...	...	...	...	...	...	...	...
	Palamau Daltonganj	808	...	...	...	...	2	1	1	2	...	...	...
	Sambalpur, Hingir-Rampur	715	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	90,681	62	72	6	78	79	49	30	79	1·26	·18	·86
Bengal	Bankura, Raniganj	81	...	...	...	...	...	...	...	...	...	...	...
	Birbhum „	33	...	...	...	...	...	...	...	...	...	...	...
	Burdwan „	38,765	34	40	1	41	33	31	8	39	1·56	·08	1·06
	TOTAL	38,879	34	40	1	41	33	31	8	39	1·56	·08	1·05
Central Provinces	Chhindwara, Pench Valley	1,240	1	1	...	1	3	2	1	3	1·12	...	·80
	Narsinghpur, Mohpani	1,264	1	1	...	1	2	2	...	2	1·25	...	·79
	Chanda, Ballarpur	708	1	1	...	1	2	2	...	2	1·89	...	1·41
	Yeotmal	42	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	3,254	3	3	...	3	7	6	1	7	1·35	...	·92
Panjab	Jhelum	901	2	2	...	2	2	3	...	3	3·15	...	2·22
	Shahpur	101	...	...	...	...	...	...	...	...	...	...	...
	Mianwali	159	...	...		...	...	...	...	...	...	...	...
	TOTAL	1,161	2	2	...	2	2	3	...	3	2·59	...	1·72
Assam	Lakhimpur	2,678	13	15	...	15	78	59	22	81	8·03	...	5·60
	Naga Hills	190	1	1	...	1	...	..	...	...	27·03	..	5·26
	TOTAL	2,868	14	16	...	16	78	59	22	81	8·39	...	5·58
Baluchistan	Kalat	62	...	...	...	...	...	...	...	...	...	...	...
	Quetta, Pishin	117	1	1	...	1	...	...	...	...	12·82	...	8·55
	Sibi, Khost, etc.	792	4	4	...	4	5	5	...	5	7·89	...	5·05
	Loralai, Loralai	30	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	1,001	5	5	...	5	5	5	...	5	7·65	...	5·00
North-West Frontier Province.	Hazara	7	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (COAL)	137,851	120	138	7	145	204	153	61	214	1·56	·14	1·05

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1914—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths.			Number of serious non-fatal accidents.	Number of persons seriously injured.					
				Below ground.	Above ground.	Total deaths.		Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
			B.—MICA.										
Bihar and Orissa	Monghyr	613	...	...	...	...	...	...	...	...	...	...	...
	Hazaribagh	8,765	4	8	1	9	2	3	...	3	1·47	·30	1·03
	Gaya	2,006	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	11,384	4	8	1	9	2	3	...	3	1·14	·23	·79
Madras	Coimbatore	13	...	...	...	...	...	...	...	...	...	...	...
	Nellore	4,928	...	...	...	...	3	4	...	4	...	...	...
	Salem	328	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	5,269	...	...	...	..	3	4	...	4	...	...	...
Rajputana	Ajmer	182	1	1	...	1	...	...	...	...	9·26	...	5·49
	Merwara	150	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	332	1	1	...	1	...	...	...	...	4·90	...	3·01
	GRAND TOTAL (MICA)	16,985	5	9	1	10	5	7	...	7	·82	·16	·59
			C.—MANGANESE.										
Central Provinces	Nagpur	3,189	...	...	...	...	1	..	1	1	...	...	...
	Bhandara	1,731	1	1	...	1	1	...	1	1	·97	...	·58
	Balaghat	4,591	4	3	2	5	3	1	2	3	·73	4·15	1·09
	Chhindwara	1,135	1	1	...	1	1	1	...	1	·94	...	·88
	Jabalpur	28	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	10,674	6	5	2	7	6	2	4	6	·59	·93	·66
Madras	Vizagapatam	1,761	...	...	...	...	1	1	...	1	...	...	...
Bombay	Panch Mahals	626	...	...	...	...	1	1	...	1	...	...	...
	GRAND TOTAL (MANGANESE)	13,061	6	5	2	7	8	4	4	8	·48	·74	·54
			D.—LIMESTONE.										
Central Provinces	Jabalpur-Katni	3,824	...	...	...	...	...	...	...	...	...	...	...
Panjab	Hoshiarpur	60	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (LIMESTONE)	3,884	...	...	...	...	...	...	...	..	...	...	...
			E.—SALT.										
Panjab	Shahpur	32	...	...	...	...	...	...	...	...	...	...	...
	Jhelum	857	1	5	...	5	3	3	...	3	6·11	...	5·83
	Mianwali	73	...	..	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (SALT)	962	1	5	...	5	3	3	...	3	5·42	...	5·20

APPENDIX II—*contd.*

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1914—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
			F.—GEMS.										
Burma	Mogok (Rubies, etc.)	1,729	1	1	...	1	2	...	2	2	1·16	...	·58
	GRAND TOTAL (Gems)	1,729	1	1	...	1	2	...	2	2	1·16	...	·58
			G.—SLATE.										
Bihar and Orissa	Monghyr	280	...	...	...	...	2	...	2	2	...	...	...
Panjab	Kangra	373	...	...	...	...	...	...	...	...	...	...	...
	Gurgaon	288	...	...	...	...	...	...	...	...	...	...	...
	Total	661	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Slate)	941	...	...	...	...	2	...	2	2	...	...	...
			H.—GOLD.										
Madras	Anantapur	2,038	4	3	1	4	8	7	1	8	4·95	·70	1·96
			I.—IRON.										
Bihar and Orissa	Puri	33	...	...	...	...	...	...	...	...	...	...	...
	Singhbhum	935	1	...	1	1	1	...	1	1	...	18·18	1·07
	Total	968	1	...	1	1	1	...	1	1	...	12·82	1·03
Central Provinces	Chanda	117	...	...	...	...	...	...	...	...	...	...	...
	Jabalpur	103	...	...	...	...	...	...	...	...	...	...	...
	Total	220	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Iron)	1,188	1	...	1	1	1	...	1	1	...	7·57	·84
			J.—WOLFRAM.										
Burma	Tavoy	2,937	10	8	4	12	8	7	2	9	4·39	3·59	4·09
	Mergui	95	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Wolfram).	3,032	10	8	4	12	8	7	2	9	4·31	3·40	3·96
			K.—MAGNESITE.										
Madras	Salem	80	...	...	...	...	...	...	...	...	...	...	...
			L.—CHROMITE.										
Baluchistan	Quetta-Pishin	10	...	...	...	...	...	...	...	...	...	...	...
	Zhob	60	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Chromite)	70	...	...	...	...	...	...	...	...	...	...	...

APPENDIX II—*contd.*

Table No. 2—*concld.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1914—*concld.*

Provinces.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				DEATH-RATE PER 1,000 PERSONS EMPLOYED.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
		M.—COPPER ORE.											
Bihar and Orissa	Singhbhum	1,867	4	5	1	6	3	1	2	3	12·44	·68	3·21
		N.—FULLER'S EARTH.											
Central Provinces	Jabalpur	*	...	...	...	...	...	...	...	...	...	...	...
		O.—CLAY.											
Bihar and Orissa	Palamau	23	...	...	...	...	...	...	...	...	...	...	...
Central Provinces	Jabalpur	237	...	...	...	...	...	...	...	...	...	..	...
	GRAND TOTAL (CLAY)	260	...	...	...	...	...	...	...	...	...	...	...
		P.—GALENA.											
Central Provinces	Drug	92	..	...	...	...	...	...	..	...	...	...	...
		Q.—BAUXITE.											
Central Provinces	Jabalpur	33	...	...	...	...	...	...	..	...	...	...	...
		R.—TIN.											
Bihar and Orissa	Hazaribagh	15	...	...	...	...	...	...	...	...	...	...	...
Burma	Mergui (Maliwan)	†	...	...	...	...	...	...	...	...	...	...	...
	Tavoy	120	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (TIN)	135	...	...	...	...	...	...	...	...	...	...	...
		S.—STEATITE.											
Central Provinces	Jabalpur	92	...	...	...	...	...	...	...	...	...	...	...
Madras	Kurnool	106	...	...	...	...	1	1	...	1	...	...	...
	GRAND TOTAL (STEATITE)	198	...	...	...	...	1	1	...	1	...	...	...
		T.—GRANITE.											
Burma	Amherst	641	...	...	...	...	...	...	...	...	...	...	...
		U.—CORUNDUM.											
Madras	Trichinopoly	66	...	...	...	...	...	...	...	...	...	...	...
		V.—SAMARSKITE.											
Madras	Nellore	‡	...	...	...	...	...	...	...	...	...	...	...
		W.—TRIPLITE.											
Bihar and Orissa	Gaya	§	...	...	...	...	...	...	...	...	...	...	...
		X.—PITCHBLENDE.											
Bihar and Orissa	Gaya	‖ 98	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (ALL MINERALS).	185,211	152	174	17	191	245	183	75	258	1·45	·26	1·03

* Figures included with those for Central Provinces Limestone.
† " " " " " Mergui Wolfram.
‖ Figures including those for Triplite.
‡ Figures included with those for Madras, Nellore, Mica.
§ " " " " " Gaya Pitchblende.

APPENDIX II—*contd.*

Table No. 3.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1914, classified according to the age and sex of the workers.

Mineral.	Province and mineral field.	Number of separate fatal accidents.	Number of deaths.								Total below and above ground.
			Below ground.				Above ground.				
			Adult males.	Adult females.	Children (under 12).	Total.	Adult males.	Adult females.	Children (under 12).	Total.	
Coal	Baluchistan — Quetta-Pishin	1	1	...	...	1	...	...	...	...	1
	Baluchistan — Sibi	4	4	..	...	4	...	...	...	...	4
	Total Baluchistan	5	5	..	...	5	...	...	...	...	5
	Bihar and Orissa — Giridih	5	7	2	...	9	1	...	...	1	10
	Bihar and Orissa — Jharia	53	47	11	...	58	5	...	...	5	63
	Bihar and Orissa — Raniganj	4	4	1	...	5	...	...	...	...	5
	Total Bihar and Orissa	62	58	14	...	72	6	...	...	6	78
	Bengal — Raniganj	34	35	5	...	40	1	...	...	1	41
	Central Provinces — Chanda	1	1	...	..	1	...	...	...	...	1
	Central Provinces — Chhindwara	1	1	...	...	1	...	...	...	...	1
	Central Provinces — Narsinghpur	1	1	...	...	1	...	...	...	...	1
	Total Central Provinces	3	3	...	...	3		...	...	...	3
	Assam — Lakhimpur	13	15	...	...	15	...	...	...	...	15
	Assam — Naga Hills	1	1	...	...	1	...	...	...	...	1
	Total Assam	14	16	...	...	16	...	...	...	...	16
	Panjab, Jhelum	2	2	...	...	2	..	...	...	...	2
	Total Coal	120	119	19	...	138	7	...	...	7	145
Manganese	Central Provinces — Balaghat	4	4	...	...	4	...	1	...	1	5
	Central Provinces — Bhandara	1	..	1	..	1	...	...	...	...	1
	Central Provinces — Chhindwara	1	...	1	...	1	...	...	...	...	1
	Total Manganese	6	4	2	...	6	...	1	...	1	7
Mica	Bihar and Orissa, Hazaribagh	4	6	2	...	8	1	..	...	1	9
	Rajputana, Ajmer	1	1	...	...	1	..	...	...	...	1
	Total Mica	5	7	2	...	9	1	...	...	1	10
Iron	Bihar and Orissa, Singhbhum	1	...	...	...	...	1	...	...	1	1
Salt	Panjab, Jhelum	1	5	...	...	5	...	..	...	..	5
Gold	Madras, Anantapur	4	3	...	...	3	1	...	...	1	4
Wolfram	Burma, Tavoy	10	7	1	...	8	4	...	...	4	12
Copper	Bihar and Orissa, Singhbhum	4	5	...	...	5	1	...	...	1	6
Gems (Rubies)	Burma, Mogok	1	1	...	...	1	...	...	...	...	1
Grand total (all minerals)		152	151	24	...	175	15	1	...	16	191

APPENDIX II—*concld.*

Table No. 4.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1914, classified according to cause of accident.

Mineral worked.	Number of separate fatal accidents.	Number of persons killed.											Death-rate per 1,000 persons employed.		
		Explosions of fire-damp.	Falls of roof.	Falls of side.	In shafts.	Suffocation by gases.	By explosives.	Irruptions of water or falling into water.	Haulage.	Miscellaneous below ground.	Surface.	Total deaths.	Below ground.	Above ground.	Below and above ground.
Coal . . .	120	1	47	36	18	1	4	2	21	8	7	145	1·56	·14	1·05
Mica . . .	5	...	1	2	...	...	1	5	...	...	1	10	·82	·16	·59
Manganese . .	6	...	...	2	...	...	2	1	...	...	2	7	·48	·74	·54
Salt . . .	1	...	...	...	...	...	5	...	...	...	...	5	5·42	...	5·20
Gems (Rubies) .	1	...	...	...	...	...	1	...	...	...	...	1	1·16	...	·58
Gold . . .	4	...	...	...	2	...	...	...	...	1	1	4	4·95	·70	1·96
Iron . .	1	...	...	...	..	...	...	...	...	...	1	1	...	7·57	·84
Wolfram . .	10	...	...	7	...	...	...	...	...	1	4	12	4·31	3·40	3·96
Copper . .	4	...	...	...	2	...	3	...	...	...	1	6	12·44	·68	3·21
Total 1914 . .	152	1	48	47	22	1	16	8	21	10	17	191	1·45	·26	1·03
Total preceding year.	136	29	41	37	29	1	2	30	16	14	12	211	1·71	·19	1·16
Difference . .	+16	—28	+7	+10	—7	...	+14	—22	+5	—4	+5	—20	—·26	+·7	—·13

APPENDIX III.

PROSECUTIONS UNDER THE MINES ACT.

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1914.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bihar and Orissa	Manbhum	1	1	1	Section 20, Rule 3 of Notification No. 11793-103, dated 30th December 1908. Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904. Section 20, Rule 47 of Notification No. 2968-82, dated 21st April 1906.	
	Do.	1	1	1	Section 20, Rule 8 of Notification No. 11793—103, dated 30th December 1908.	
	Gaya	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
	Manbhum	1	1	...	Section 20, Rule 5 of Notification No. 864-68-20, dated 10th March 1904.	Acquitted.
	Do.	1	1	...	Ditto ditto	Do.
	Do.	1	1	...	Ditto ditto	Do.
	Do.	1	1	...	Ditto ditto	Do.
Central Provinces	Balaghat	1	1	1	Section 20, Rules 2, 3 and 5 of Notification No. 6436—152, dated 2nd September 1911.	
Bihar and Orissa	Hazaribagh	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
	Manbhum	1	2	2	Ditto ditto.	
	Do.	1	1	...	Ditto ditto	Absconded.
	Do.	1	1	...	Ditto ditto	Not tried in 1914.
Bengal	Burdwan	1	1	...	Ditto ditto	Withdrawn.
Central Provinces	Nagpur	1	1	1	Section 20, Rules 3, 5 and 12 of Notification No. 6436—152, dated 2nd September 1911.	
	Do.	1	1	1	Ditto ditto.	
	Bhandara	1	1	1	Section 20, Rules 3, 9 and 12 of Notification No. 6436—152, dated 2nd September 1911.	Acquitted in regard to rule 3.
Bengal	Burdwan	1	1	1	Indian Mines Act, 1901, Section 13 (*1*), and Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904.	
Bihar and Orissa	Hazaribagh	1	2	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
Bengal	Burdwan	1	1	1	Indian Mines Act, 1901, Section 13 (*1*).	
Bihar and Orissa	Hazaribagh	1	9	1	Indian Mines Act, 1901, Sections 16 and 17.	
	Manbhum	1	1	...	Section 20, Rule 5 of Notification No. 11793—103, dated 30th December 1908.	Withdrawn.
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	...	Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904.	Acquitted.
Bengal	Burdwan	1	1	1	Ditto ditto.	
Bihar and Orissa	Manbhum	1	3	3	Indian Mines Act, 1901, Section 13 (*1*). Section 20, Rules 4 and 9 of Notification No. 864-68-20, dated 10th March 1904.	

APPENDIX III—*concld.*

PROSECUTIONS UNDER THE MINES ACT—*concld.*

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1914.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bengal	Burdwan	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
	Do.	1	1	1	Indian Mines Act, 1901, Section 13 (*1*). Section 20, Rules 1, 4 and 7 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904.	
	Manbhum	1	4	4	Indian Mines Act, 1901, Section 13 (*1*).	
	Monghyr	1	2	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	One accused absconded.
	Hazaribagh	1	1	1	Indian Mines Act, 1901, Section 16. Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
Bihar and Orissa	Manbhum	1	1	1	Indian Mines Act, 1901, Section 13 (*1*).	
	Hazaribagh	1	1	1	Section 20, Rules 1 and 4 of Notification No. 11793—103, dated 30th December 1908.	
	Manbhum	1	1	1	Section 20, Rule 45 of Notification No. 2968—32, dated 21st April 1906.	
	Do.	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908, and Rule 45 of Notification No. 2968—32, dated 21st April 1906.	
	Do.	1	2	2	Section 20, Rule 9 of Notification No. 864-68-20, dated 10th March 1904.	
Bengal	Burdwan	1	3	3	Section 20, Rules 1, 7 and 19 of Notification No. 864-68-20, dated 10th March 1904.	
Bihar and Orissa	Manbhum	1	3	3	Indian Mines Act, 1901, Section 13 (*1*). Section 20, Rules 3 and 7 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	1	...	Section 20, Rule 12 of Notification No. 864-68-20, dated 10th March 1904.	Not tried in 1914.
Bengal	Burdwan	1	1	1	Section 20, Rule 6 of Notification No. 864-68-20, dated 10th March 1904.	
Bihar and Orissa	Manbhum	1	1	1	Section 20, Rule 12 of Notification No. 864-68-20, dated 10th March 1904.	
	Do.	1	2	...	Section 20, Rules 2 (*g*), 7 and 8 of Notification No. 864-68-20, dated 10th March 1904.	Not tried in 1914.
	Do.	1	1	...	Section 20, Rule 12 of Notification No. 864-68-20, dated 10th March 1904.	Do.
Bengal	Burdwan	1	1	...	Section 20, Rule 19 of Notification No. 864-68-20, dated 10th March 1904. Section 20, Rule 8 of Notification No. 11793—103, dated 30th December 1908.	Do.

APPENDIX IV.

MISCELLANEOUS.

Statement No. 1.

List of Inspection Circles.

No. 1 Circle.	No. 2 Circle.	No. 3 Circle.
(*a*) All mines in the district of Manbhum, which are situated west of a line drawn from Adra Junction at mile 175 of the Bengal-Nagpur Railway to Gobindpur at mile 169 on the Grand Trunk Road and continued across the district in each direction, and all mines in the district of Palamau.	(*a*) All mines in the districts of Burdwan and Bankura to the west of a line drawn from mile 131 on the East Indian Railway main line near Asansol to mile 141 on the Ondal loop near Gaurangdi, and continued across the districts in each direction; and all mines in the district of Manbhum east of a line drawn from Adra Junction at mile 175 on the Bengal-Nagpur Railway to Gobindpur at mile 169 on the Grand Trunk Road, and continued across the district in each direction, and all mines in the districts of Hazaribagh, Gaya, Monghyr, Darjeeling and Ranchi.	(*a*) All mines in the districts of Burdwan and Bankura to the east of a line drawn from mile 131 on the East Indian Railway main line near Asansol to mile 141 on the Ondal loop near Gaurangdi, and continued across the districts in each direction, and all mines in the districts of the Sonthal Parganas, Birbhum, Singhbhum and Sambalpur.
(*b*) All mines in Assam . .	(*b*) All mines in Baluchistan . .	(*b*) All mines in the Presidency of Bombay.
(*c*) All mines in Burma . .	(*c*) All mines in the United Provinces	(*c*) All mines in the Central Provinces.
	(*d*) All mines in the Panjab . .	(*d*) All mines in the Presidency of Madras.
	(*e*) All mines in Ajmer-Merwara.	

Statement No. 2.

List of holders of certificates as managers of coal mines in British India.

(*a*) Certificates granted to holders of English certificates of competency.

FIRST CLASS.

NAME.	No. of Indian certificate.	Date of Indian certificate.	No. of English certificate.	Date of English certificate.
Turnbull, John James . . .	180	26th January 1914 . .	3929	8th September 1911.
Mark, William Stewart . . .	181	Ditto . .	3006	14th June 1907.
Harrison, Joseph Richard . .	182	Ditto . .	3985	13th March 1912.
Le Mesurier, George James Brooke	183	16th February 1914 .	56	30th July 1913.
Fisher, Frank Horace . . .	184	Ditto . .	3517	4th January 1910.
Archer, Clement John . . .	185	16th July 1914 . .	39	30th July 1913.
Carr, William	186	Ditto . .	7	30th January 1913.
James, Edmund David . . .	187	Ditto . .	4138	28th June 1912.
Shaw, John William . . .	188	Ditto . .	3335	24th February 1909.
Murray, James	189	Ditto . .	3284	22nd December 1908.

SECOND CLASS.

Barron, George William . .	20	28th March 1914 . .	7506	21st July 1910.
Owen, Robert	21	16th July 1914 . .	7162	3rd September 1909.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 2—*concld.*

List of holders of certificates as managers of coal mines in British India—*concld.*

(*b*) Certificates of Competency.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Kowar, Surendra Nath	70	28th March 1914.	
Robertson, Andrew	71	Ditto.	
Banerji, Gobinda Chandra	72	Ditto.	
Mukherji, Mohini Mohan	73	Ditto.	
Vanderbeck, Percy William	74	Ditto.	
Dutt, Fanindra Krishna	75	Ditto.	
Chatterji, Sudhir Mohan	76	Ditto.	
Allen, Albert Edward	77	Ditto.	

SECOND CLASS.

Barrowman, Alexander	90	28th March 1914.	
Ashcroft, Frederick Joshua	91	Ditto.	
Banerji, Sambhu Nath	92	Ditto.	
Ghosh, Hrishikesh	93	Ditto.	
Roy, Harish Chandra	94	Ditto.	
Bagchi, Beni Madhab	95	Ditto.	
Sen, Sarat Chandra	96	Ditto.	
Banerji, Bejoy Krishna	97	Ditto.	
Das, Debendra Nath	98	Ditto.	
Sahai, Kasi Nath	99	Ditto.	
Sur, Aswini Kumar	100	Ditto.	
Benbow, Percival Sydney	101	Ditto.	
Banerji, Jadu Gopal	102	Ditto.	
Hunter, Roger Joseph	103	Ditto.	
Ghatak, Tara Sankar	104	Ditto.	
Carapiet, Gregory George	105	Ditto.	
Bhattacharji, Tara Pada	106	Ditto.	
Sen Gupta, Jitendra Chandra	107	Ditto.	
Mukherji, Dinesh Chandra	108	Ditto.	
Rao, Harish Chandra	109	Ditto.	

(*c*) Certificate of Service.

FIRST CLASS.

Chatterji, Kali Das	137	28th March 1914.	

SECOND CLASS.

Rewasankar, Tribhuban Dass	189	26th January 1914.	
Mukherji, Niranjan	190	18th July 1914.	

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 3.

List of Universities and Colleges in England and India approved by the Governor-General in Council for the purposes of Rules 32 and 33 under the Indian Mines Act, 1901.

Name of Institution and Degree or Diploma.	Date.
University of Birmingham in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	11th June 1904.
University College of Bristol in respect of its Senior Diploma in Mining.	16th September 1904.
University of Cambridge in respect of its Diploma in Mining Engineering.	6th June 1905.
University of Durham in respect of its Degree of B.Sc. in Mining	21st December 1903.
Durham College of Science in respect of its Diploma in Mining .	29th June 1904.
University of Glasgow in respect of its Degree and Diploma in Mining.	28th September 1904.
Glasgow and West of Scotland Technical College in respect of its Diploma in Mining.	28th June 1904.
University of Leeds in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	21st November 1904.
University of London in respect of its B.Sc. Degree in Mining for Internal Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	9th June 1905.
University of London in respect of its B.Sc. Degree in Mining for External Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a Mine.	7th August 1906.
Royal School of Mines in respect of its Associateship in Mining .	24th March 1904.
University of Oxford in respect of its Diploma B. for Colliery Engineers (in Scientific Engineering and Mining subjects).	11th February 1905.
University College of Sheffield in respect of its Diploma in Mining.	15th July 1904.
University College of South Wales and Monmouthshire in respect of its Diploma in Mining.	19th April 1904.
Wigan Mining and Technical College in respect of its Diploma in Mining.	26th August 1904.
Civil Engineering College, Sibpur, in respect of its Diploma in Mining.	22nd February 1907.
Merchant Venturers' Technical College, Bristol, in respect of its Diploma in Mining Engineering.	5th October 1905.
Victoria University of Manchester in respect of its Degree and Certificate of Mining.	14th February 1906
University College of Nottingham in respect of its Diploma in Mining Engineering.	28th March 1906.
University of Sheffield in respect of its Degree of Bachelor of Engineering (Mining).	30th June 1906.
Heriot-Watt College in respect of *its* Certificate in Mining Engineering.	16th January 1908.
Calcutta University in respect of its Degree of Bachelor of Engineering in the branch of Mining Engineering.	24th September 1910.
Harvard University, Cambridge, Massachusetts, in respect of its Diploma in Mining Engineering.	22nd February 1913.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 4.

SIBPUR COLLEGE.

THE MINING CLASSES.

CIRCULAR.

(*All students must be resident*).

A course for the Diploma in the "Principles of Mining" is offered.

Arrangement of Classes.

First year.—Admissions about the end of January to the preliminary year, in which Mechanical, Electrical and Mining students are taught together.

Second year.—Promotion in April to the Junior Mining Class. Civil Engineering students who pass the Sub-Overseer examination are also admitted at this stage.

Third year.—Promotion in April to the Senior Mining Class. The examination for the Diploma in Mining is held at the end of this year.

(The possession of a certificate gives the holder no claim to any appointment under Government.)

The Mining Course.—This course covers three years (all at the College), preparing students for the examination for the Government Diploma in the "Principles of Mining". The first or preliminary year is common to the course in Mechanical and Electrical Engineering. Specialized instruction in Mining is offered only in the last two years. Students spend six weeks each year in learning practical Mine Surveying and in visiting collieries.

The courses of instruction are designed to afford theoretical training in the Principles of Mining generally to prepare students for positions of responsibility in coal or metal mines, and in the case of students attending for instruction in coal-mining, to qualify them to appear at the examinations for mine managers as required by the Indian Mines Act. Students who obtain the College Diploma may be granted a reduction by two years in the qualifying period of practical work in a coal-mine required of candidates for a colliery manager's certificate.

Admission to the Mechanical and Electrical Engineering and Mining Courses.—Admission to the first or preliminary year of the Mechanical and Electrical Engineering and Mining Courses is made on the third Monday in January. Candidates must be qualified, as laid down above, for admission to the first year of the Sub-Overseer classes (B. Final certificate-holders are admitted only to the first or preliminary year of the Mechanical and Electrical and Mining Courses).

Applications must be received at the Principal's office by the first day in January.

Admission to advanced standing.—Students who have passed the Sub-Overseer Examination may be admitted in April to the junior year of the Mining or the Mechanical and Electrical Engineering Courses, thus qualifying for admission to the final examination in those branches on the expiry of two years.

Age.—No limits of age are laid down for admission to the Mining and Mechanical and Electrical Engineering Courses.

Admission of special students to the Mining classes.—Provided there is room, persons who have completed at least two years' practical work upon a mine may be admitted direct to the junior year of the Mining Course as special students, irrespective of age, provided that their general education is such as to enable them to follow the course with profit. They must apply for admission before 1st March, producing statements from the managers under whom they have served, showing the nature of their employment and period.

Two places in the Mechanical and Electrical Engineering and two places in the Mining Courses are reserved for students from Bihar and Orissa.

The total number of admissions to the above courses in Civil and Mechanical and Electrical Engineering and Mining is limited to 60; preference is given to admissions to the junior years of the Upper Subordinate, the Mechanical and Electrical Engineering and Mining Courses and to the second year of the Sub-Overseer Courses. The number admitted to the Civil and Mechanical and Electrical and Mining Branches is regulated by the Principal, so that the total number in any combined class does not exceed 60, nor in any special branch shall it exceed 40.

In determining the age of candidates for admission, for Indian students the age statement, as given on the Matriculation or B. Final certificates, is the only evidence accepted. European students must produce their baptismal certificates.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 4—*contd.*

Medical Examination.

Every applicant must before admission present himself before the Medical Officer resident at the College for examination as to his eyesight, physical strength and fitness for manual labour. In the case of those resident at a distance, a Civil Surgeon's certificate will be accepted. Candidates not protected by vaccination must be vaccinated before admission.

Commencement of Session.

The second-year Sub-Overseer and the junior-year sessions of all courses commence in April as soon as possible after the B. Final or Sub-Overseer Examination results are announced.

The first-year session commences on the first Monday in May.

Any student unable to join the College on the date mentioned in his admission letter must send by that date Rs. 9 of the first instalment of fees in order to secure his seat; failing this, another student will be admitted in his place. He must also bring with him, when he joins, a medical certificate from a Civil or Assistant Surgeon testifying his inability to join on the proper date, failing which he will be liable to a fine of Rs. 10.

Vacation.

The College will be closed for the long vacation from about the middle of August to the first Monday in November. No student may remain at the College during this period, except such as may be detained on duty by the Principal.

Residential arrangements.

All students must be resident.

There are separate furnished barrack accommodation and necessary arrangements for Europeans, Muhammadans and Hindus.

In the case of Muhammadans, on account of the greater cost of living at the College owing to the small number of Muhammadan students, Government maintain a cook and one other servant, and pay a stipend to each Muhammadan student varying from Rs. 6 to Re. 1 a month according as there may be one or sixteen resident Muhammadans.

College Dues.

Initial—

	Rs.	
Entrance fee, mess	2½	Non-returnable.
Entrance fee, athletic club	1½	
Caution-money deposit	5	Balance returnable if applied for within three years after paying College dues.

Monthly—

Tuition	3	Payable for each month of the year.
Electric light	1	Payable for ten months of the year.
Board (session) 9½ months	....	Europeans, Rs. 25; Hindus, Rs. 11.
„ (vacation) 2½ „	....	Europeans, Rs. 5; Hindus, Rs. 2-8.
Athletic club	1	in March, June and November.

Free studentships.—A total number of five free studentships for all branches in the Apprentice Department are available for European students.

Reduced feeships.—A total number of 25 reduced feeships for all branches of the Apprentice Department are available for Europeans. These reduce the fees to Rs. 5 for messing payable for 12 months in addition to the electric light and athletic club fees.

A total number of 40 reduced feeships are available for Indians. These reduce the fees to Rs. 2 for messing, payable for twelve months in addition to the electric light and athletic club fees.

Note.—Free and reduced feeships apply only to students whose parents or guardians reside within the limits of the jurisdiction of the Governor of Bengal, but the sons of employés of the East Indian Railway, Bengal-Nagpur Railway or Eastern Bengal State Railway, of soldiers serving in India, of Survey, Telegraph and other Government officers who are liable to employment in Bengal, or pensioners who, when on active service, were liable to be so employed, are eligible for election.

Forms of application for the reduced feeships are available in the Principal's office.

These free and reduced feeships are awarded by the Board of Visitors after the commencement of the session from among students who have joined.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 4—*contd.*

SCHOLARSHIPS AND STIPENDS.

MINING COURSE (JUNIOR AND SENIOR YEARS)—

	Rs.	
Two scholarships of	12	carrying exemption from tuition fee unless the holder is also on the reduced fee or free list for candidates trained at Sibpur or at other schools in Bengal.
Three „ of	6	

SYLLABUS OF MINING COURSES.

COURSE I.

Geology applied to mining.—(One lecture per week).

Classification of rocks: characteristic fossils and economic products of the principal systems.

Structure of rock; foldings, faults, cleavage, formation of mineral veins.

Principles of geological surveying: methods employed in constructing geological maps and sections. Special reference to the geology of India.

Mining Engineering.—(Two lectures per week).

Boring by hand and power machines.

Sinking and lining shafts; various methods employed in special cases.

Systems of haulage, underground and aboveground, aerial ropeways.

Hoisting, head-gear, ropes, safety appliances.

Mining legislation.

Section A.—(One lecture per week).

Methods of working coal, shafts, pillars, preliminary work, and various methods of working the seams. Special reference to thick coal working as practised in England and different parts of the world.

Shot-firing; coal-cutting by machinery.

Surface subsidence and under-sea working.

Timbering and other supports.

Coal mine plans and sections, connecting surface and underground surveys.

Section B.—(One lecture per week.)

Prospecting for and methods of working mineral veins.

Alluvial mining and open workings.

Hydraulic mining; dredging for gold; ore-beds and deep leads, overhand and underhand stopping.

Hand and power drilling; blasting, timbering.

Metal mine plans.

COURSE II.

Descriptive Mineralogy.—(One lecture per week).

Physical properties of minerals; description of various ores and fuels; methods of determination.

Prospecting operations.

Mining Engineering.—(Two lectures per week during first-half of session).

Drainage of mines; adits, levels; pumping machinery; dams; boring against old workings.

Ventilation of mines; natural and artificial ventilation; splitting and regulating air-currents; types of fans; water-gauge and anemometer.

Power-application in a mine; discussion of relative merits of steam, water, compressed air, electricity and oil, as sources of applied power.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 4—*concld.*

Section A.—(One lecture per week).

Description of gases found in coal mines; colliery explosions; safety lamps; instruments for detecting fire-damp; treatment of men overcome by foul air.

Arrangement of surface works at a colliery; sorting and screening coals; coal-washing, briquette making, coking and bye-products.

Section B.—(One lecture per week).

Surface works of metal mines, sorting, crushing, sizing and concentration of various ores. Modern ore-dressing machinery and slime tables.

Special reference to treatment of gold, silver, copper, lead and zinc.

Cyanide and Chlorine treatment of slimes.

Statement No. 5.

MINING INSTRUCTION IN BENGAL AND BIHAR AND ORISSA.

[*The Mining Educational Advisory Board desire that Colliery Managers will kindly publish this information in their collieries. An appeal is also made to them to support the lectures by seeing that members of their colliery staff who are suitable take advantage of the lectures and attend them regularly.*]

RANIGANJ AND JHARIA COAL-FIELDS.

Lectures will be delivered throughout the session at the following centres :—

Place and time.	*Lecturer.*
(1) Lecture-room near Sijua station, on Tuesdays at 5-30 P.M.	Mr. J. R. Harrison.
(2) Lecture-room near the Jharia Club, on Mondays at 5-30 P.M.	„ E. D. James.
(3) Lecture-room at Messrs. Apcar and Company's Charanpur Colliery, on Wednesdays at 5-30 P.M.	„ T. Gibson.
(4) Lecture-room near Dishargarh Club, on Mondays at 5-30 P.M.	„ W. R. Lascelles.
(5) Railway Institute, Raniganj, on Saturdays at 5-30 P.M.	„ J. Wilson, B.SC.

The course of instruction, consisting of not less than 25 lectures, will commence the last week in October and end in the following May. An examination will be held on the first Monday in June 1915, and candidates who pass the examination will receive a certificate recording their success. No candidate will, however, be permitted to sit for the examination unless he has attended 50 per cent. of the lectures and received 40 per cent. of the marks allotted for home work.

All Europeans and English-speaking Indians are cordially invited to attend.

The following Sub-Committees have been appointed for each centre :—

RANIGANJ DISTRICT.

Dishargorh Centre.	*Charanpur Centre.*	*Raniganj Centre.*
Mr. G. C. Leach, *Chairman.*	Mr. C. J. E. David, *Chairman.*	Mr. C. J. E. David, *Chairman.*
„ Glen George.	„ T. Samson.	„ P. S. Keelan.
„ J. Mackintosh.	„ R. Mitchell.	„ H. Piggford.
„ Geo. Millar.	„ E. M. Patterson.	„ W. J. Rees.
„ F. Owen.	„ A. Russell.	Babu Promotho Nath Hazra.
Babu M. N. Ray (Begunia).	Babu Atul Sasi Mitra.	„ Bejoy Krishna Banerji.
„ H. P. Mukherji (Chota Dhemo).	The Local Lecturer, *Secretary.*	The Local Lecturer, *Secretary.*
„ P. C. Tarafdar.		
The Local Lecturer, *Secretary.*		

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 5—*contd.*

JHARIA DISTRICT.

Jharia Centre.

The Chief Inspector of Mines, *Chairman.*
Mr. T. Adamson.
„ R. G. M. Bathgate.
„ R. J. Browne.
„ A. S. Thomson.
Babu Bhupati Mukherji.
„ Sita Nath Dutta.
The Local Lecturer, *Secretary.*

Sijua Centre.

Mr. R. R. Simpson, *Chairman.*
„ A. Agabeg.
„ E. S. Bennertz.
„ J. S. Kean.
Babu Moti Lal Raha.
The Local Lecturer, *Secretary.*

SYLLABUS OF THE COURSE OF INSTRUCTION.

The course will treat principally of the more practical operations in actual mining, with special reference to India, and the principles underlying such operations will be thoroughly discussed. Special attention will be paid to the various methods of working thick seams. Sketches illustrating the lectures will be distributed free of charge.

At the close of each lecture questions will be set for home work.

FIRST-YEAR COURSE.

1. *Geology.*—General structure of the crust of the earth ; descriptions of faults, dykes, outcrop, dip, strike, unconformity, etc. ; composition and properties of coal ; special reference to the coal measures in India ; importance of recording results of observations.

2. *Exploration.*—Advantages of borings ; driving through faults, washouts, dykes, methods of maintaining the direction and gradient of such drivages.

3. *Boring and winning.*—Different systems of boring ; choice of methods ; cost of boring ; winning coal by inclines, adits, shafts and cross-cuts.

4. *Sinking.*—Site of colliery ; position of shafts, excavation and shape ; blasting with use of safety fuse and electric battery ; explosives and detonators, their safe storing and handling ; sinking and how to deal with difficulties ; apparatus and tools used ; lining shafts and scaffolding ; pitbanking arrangements.

5. *Opening out and methods of working, surveying.*—Shafts ; pillars ; arching or supporting the pit bottom ; quarrying ; pillar and stall ; double road stall ; long wall ; panel systems.

6. *Timbering and supporting.*—Fixing of props and double timber, chocks or cogs ; special methods of timbering to withstand pressure from the roof, sides and floor ; securing dangerous holes in the roof due to heavy falls ; use of iron or steel girders ; stowing and packing ; arching.

7. *Gases met with in coal mines.*—Their experimental preparation by chemicals, and illustration of their physical and physiological properties ; methods of detecting ; explosion and gob fires.

8. *Ventilation.*—Natural and artificial methods ; coursing the air ; use of stoppings, brattices, doors, air bridges, regulators ; measuring the quantity of air, use of thermometer, barometer ; water-gauge, anemometer ; the friction of air in mines and the elementary theory of splitting.

9. *Safety lamps.*—Theory of safety lamps, Sir Humphrey Davy's experiment ; the Davy lamp, the Clanny and Thomas and Williams lamps, the Marsaut and Mueseler lamps ; fire-damp detectors.

SECOND-YEAR COURSE.

1. *Mechanical Engineering of collieries.*—Winding engines, discussion of the different types, calculation of the dimensions of cylinders, length of stroke, diameter of drum, etc. ; strength of winding ropes and chains, detaching hooks, capping winding ropes, care and examination of ropes.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 5—*concld.*

SECOND-YEAR COURSE—*concld.*

2. *Pumping.*—Importance of a good system; measurement of quantities of water; lifting and forcing pumps; pumps for sinking; temporary and permanent pumps; calculation of dimensions of pumps to perform a given duty, strength of pipes, methods of supporting; different types of joints.

3. *Hauling.*—Tramways, tubs and waggons; conveyance by self-acting inclines; single-rope haulage; main and tail; endless rope; endless chain; calculations concerning inclines, sizes of haulage engines, ropes, etc.; signalling; capping of haulage ropes.

4. *Methods of working and ventilation.*—Revision of first-year course work, followed by a fuller treatment of these subjects.

5. *Surface arrangements.*—Boilers; Cornish, Lancashire, and water-tube types; boiler fittings, injectors, and steam-pipes, etc.; boiler explosions, incrustation, corrosion and priming; calculations of boilers. Heap-steads; arrangement of roads around pit bank; simple screening and sizing.

6. *Transmission of power.*—By steam, compressed air, and electricity, discussing the relative merits of each system.

Text-books recommended.—Peel's or Kerr's Elementary Mining; O'Donoghue's Mining Arithmetic.

W. H. EVERETT,

(Offg. Supdt. of Industries, etc.),
Secretary to the Mining Educational Advisory Board,
Writers' Buildings, Calcutta.

Statement No. 6.

No. 8813—1.

DEPARTMENT OF COMMERCE AND INDUSTRY.

NOTIFICATION.

GEOLOGY AND MINERALS.

Simla, the 5th September 1914.

In exercise of the power conferred by Section 20 of the Indian Mines Act, 1901 (VIII of 1901), the Governor-General in Council is pleased to direct that in the rules regarding certificates of mine managers issued with Notification No. 2968-82 (Geology and Minerals), dated the 21st April 1906, the following amendments shall be made, namely:—

Rules 36 and 37 and the words "Notwithstanding anything in rule 36 or 37" in rule 38 shall be cancelled.

R. E. ENTHOVEN,

Secretary to the Government of India.

No. 8814—8830—1.

A copy is forwarded to all Local Governments and Administrations except the Chief Commissioner of Delhi.

A copy is also forwarded to Railway Department. Director, Geological Survey of India. Chief Inspector of Mines in India. Secretary, Indian Mining Association.

By order, etc.,

S. H. SLATER,

Under-Secretary to the Government of India.

APPENDIX IV—*concld.*

MISCELLANEOUS.

Statement No. 7.

LAND ACQUISITION (MINES) ACT, 1885.

Particulars required to be furnished by colliery owners to Local Governments when giving notice under Section IV of the Land Acquisition (Mines) Act, 1885, of their intention to work coal under land acquired for a railway—

(*a*) The name, residence and profession of the person giving the notice.

(*b*) The name of the mine, together with that of the village and district in which the mine is situate.

(*c*) The name of the railway line or of the siding and the main line to which the siding is attached, under which the mine is situate.

(*d*) The names of the railway stations and the mileage between which the said siding or the said portion of the railway land, under which the mine is situate, falls.

(*e*) The number and date of the declaration under which the land was acquired..

(*f*) A tracing, showing the boundaries of, and the area over which, the acquired land extends.

CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA
8, HASTINGS STREET

Department of Mines, India

REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA

Under the Indian Mines Act (VIII of 1901)

FOR THE

YEAR ENDING 31st DECEMBER

1915

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

BY

G. F. ADAMS, M. Inst. C. E.
Chief Inspector of Mines in India

CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA
1916

[NOT FOR SALE.]

134446

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FROM

G. F. ADAMS, ESQ., M.INST.C.E.,

Chief Inspector of Mines in India,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
DEPARTMENT OF COMMERCE AND INDUSTRY.

Dated Dhanbad, 2nd June 1916.

SIR,

I HAVE the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1915.

EXPLANATORY INTRODUCTION.

It is necessary to explain that this is a report relating entirely to the administration of the Indian Mines Act, 1901, and is not a complete statistical review of Indian Mining and analogous industries. It should be remembered in reading the statistics that there must be a considerable output from quarries which are under 20 feet deep; and owing to the exclusion of such places from the scope of the Mines Act, these figures should not be regarded as a complete index to the production of the mineral wealth of the country.

Figures of production of all minerals raised in British India and the Native States, whether from workings under the Act or not, are published annually in the Records of the Geological Survey of India, whilst every five years a Quinquennial Review of the Mineral Production of India is issued by the same Department. The latest review published is that for the years 1909-1913 (Records, Geological Survey of India, Volume XLVI). Figures for Mysore, where most of the Indian gold is raised, are given in the report of the Chief Inspector of that Native State, and mineral statistics may also be found in the administrative reports of the various Presidencies, Provinces and States of India.

This report is divided into five sections, *viz.*:—

Section I.—Persons employed.
„ II.—Output of mineral.
„ III.—Accidents.
„ IV.—Prosecutions and additions to the Act.
„ V.—General remarks.

Section I.—Persons employed.

During the year 1915 the average number of persons working in and about the mines regulated by the Indian Mines Act was 180,088, of whom 118,017 worked underground and 62,071 on the surface. One hundred and twelve thousand, seven hundred and eighty-seven were adult males, 62,096 were adult females and 5,205 were children under 12 years of age. This is a decrease of 5,123 workers or 2·77 per cent.

Those employed in coal mines numbered 145,537, which is an increase of 7,686 over those employed in 1914.

In the Raniganj coalfield (Burdwan district) the supply of labour was reported to be unusually plentiful, owing chiefly to a bad harvest in the previous year. In the neighbouring district of Bankura the scarcity amounted to a famine and labour flocked to the coal mines in large numbers. There are, however, in this coalfield outlying mines, where more labour would have been welcomed.

In the Jharia coalfield also the year was considered to be a good one generally.

The labour question continues to be a very difficult one in the Assam (Lakhimpur) coal mines. As has been previously stated, in addition to Indian coolies, Nepalese, Mekranis and Chinese have all been tried. Of the former 832 and of the two latter 130 and 68, respectively, were recruited during the year. The Chinese have proved unsatisfactory and it is not proposed to recruit any more of them.

Foreign labour had to be imported for the working of manganese mines in certain districts in the Central Provinces. In some cases it was recruited from the United Provinces. The district officers report favourably on the conditions of these workpeople.

The speeding up of the wolfram industry towards the end of the year necessitated the importation of coolies from all possible sources of supply. The various classes of labour now include Chinese, Tamils, Telugus, Malays, Garhwalis, Burmans, Karens and aboriginal tribes from Chota-Nagpur. The latter, most of whom have worked in the mica mines in their own neighbourhood, have turned out to be very good workmen. The Chinese however are the main standby of the mine manager. The attendance of the Burmans is dependent on the season. They go to the mines after the harvest and after planting. Wages range from Rs. 30 to Rs. 65 per mensem. The Chinaman works hard but he objects to interference. He will not obey his mine manager even in matters which affect his own safety. He persists in his own way and is independent, because he can always secure employment elsewhere at as remunerative rates as he has been receiving. The Lower Burma Chamber of Mines, which was formed in 1913, was reconstituted towards the end of the year under report and a strong committee was formed. This new body contains all the most important mine owners, and it is to be hoped that its formation will lead to improved conditions all round.

Section II.—Output of Mineral.

COAL.

In the report for 1914 it was stated that the increase was the smallest since 1910. In 1915 there was a distinct advance. The total output of coal was 16,352,480 tons, an increase of 624,849 or 3·97 over the output of 1914. This is the first year in which the sixteenth million has been reached.

Upon an analysis of the figures, I find that, as far as the coalfields of Bengal and of Bihar and Orissa are concerned, the year was remarkably one of large increases and decreases. The outputs of the larger firms and of those working the best seams increased. Those of the smaller owners and of those working the inferior coals decreased. In Bengal (Raniganj coalfield), where the total increase is almost entirely accounted for, the increases were over eight, and the decreases over three hundred thousand tons, resulting in a nett increase of over half a million. In Jharia, the figures are still more emphatic. The total output of the field was stationary, but the increases and decreases, which practically balanced one another, were each over a million tons.

Nineteen hundred and fifteen, therefore, was distinctly the year of the best seams and of the large owner, and the increase of output kept pace with the demand. Reduction in finance facilities, the closing down of much internal industry, and the restriction of commerce forced a good deal of extra coal on the market early in the year and brought down prices. This reacted on the industry generally throughout the year and affected specially the small owner and those working inferior coals.

More and more coal had to go by rail as the year went on, until, at its close, practically all that was used in India, excluding small quantities destined for a few towns in the far southern corners, was so carried.

Of the total output 15,686,816 tons, or 95·93 per cent. were raised in Bengal and in Bihar and Orissa, the percentage of the previous five years being 95·54. In the other provinces, there was again a decrease in Baluchistan, amounting to 9·59 per cent. and there were increases in the Central Provinces of 3·42 per cent., in the Panjab of 6·64 per cent., in Assam of 2·06 per cent. and in the North-West Frontier Province (output negligible) of 36·17 per cent.

The output per person employed during the year was (*a*) below ground 171 tons, and (*b*) above and below ground 112 tons. The figures for the five years preceding were (*a*) 177 and (*b*) 114. Taking each group of coalfields separately these figures were as follows:—

Bengal and Bihar (*a*) 174 and 181, (*b*) 114 and 115; the Central Provinces (*a*) 116 and 124, (*b*) 79 and 87; Assam (*a*) 162 and 201, (*b*) 108 and 129; Baluchistan (*a*) 74 and 73, (*b*) 45 and 48; and the Panjab and North-West (*a*) 68 and 55, (*b*) 45 and 35.

The output in England in 1914 was 290 tons per person employed below ground and 234 tons per person employed above and below ground. These are pre-war figures.

MICA.

There was again a decrease in the output, which amounted to 24,063 cwts., a decrease of 36·99 per cent. on the output of 1914, which was 38,189 cwts. This is the smallest output since 1910.

The war has had a great effect on the mica trade, partly owing to the restrictions placed by Government on its export to various countries. These restrictions and the loss of the German market had an adverse effect on the sale of all grades of splittings. The chief demand was for good clear and part-stained block mica, for use, among other things, for the magnetos of aeroplanes. The trade in Madras mica was especially depressed.

MANGANESE.

The output was 378,172 tons. This is a decrease, as compared with that of 1914 of 177,500 tons, or 31·94 per cent. This is the smallest output since 1909. The industry was very depressed during the first half of the year. In August a strong demand arose in the United Kingdom, France and America, but owing to shortage of tonnage, especially towards the end of the year, this could not be fully met. Prices advanced enormously—17½*d.* per unit was reached—but these followed the abnormal increase in ocean freights, insurance and other charges incidental to shipping, and the result to the exporter was no better than in normal times with normal freights.

GEMS.

There was a decrease in the output, which was 251,449 carats. In 1914 304,042 carats were raised. This is a decrease of 17·30 per cent.

As may be expected, the European markets remained in a state of collapse, but in India a steady demand kept on during the whole twelve months, with prices rather inclined to rise than to fall and well above those of 1914, both for rubies and sapphires. Spinels were an unimportant item and prices for them fell off in a very marked way. The royalty payments from the native mine owners averaged nearly double those paid during the first few months after the war, so they recovered their position to a great extent.

GOLD.

The output was 24,320 ounces, compared with 19,873 ounces in 1914. This is an increase of 22·38 per cent. An output of 512 ounces of silver is also reported from a gold mine. This is the first time silver has figured in these records.

COPPER ORE.

The output was 8,010 tons compared with 4,400 in 1914. This is ar increase of 82·05 per cent.

WOLFRAM.

There was an increase in the output which was 39,432 cwts., compared with 31,526 cwts. in 1914. This is an increase of 25·08 per cent. During the greater part of the year the industry languished, but towards the close strenuous efforts were successfully made to stimulate the production.

OTHER MINERALS.

There were increases in bauxite, clay, fuller's earth, salt, magnesite and galena and decreases in iron, chromite, tin, steatite, samarskite, slate and limestone. The limestone trade has suffered owing to building operations being reduced.

Section III.—Accidents.

During the year 1915, at mines regulated by the Indian Mines Act, 1901, there were 163 fatal accidents, being an increase of 11 on the number in 1914 and an increase of 28 on the average number in the previous five years. The increase is chiefly made up of accidents from falls of roof and accidents on the surface, of the latter of which there were 37 as compared with 17 in 1914. There were increases in all the four sub-heads into which surface accidents are classified.

The principal fields in which accidents occur are (1) the Bengal and Bihar and Orissa coalfields, (2) the Assam (Lakhimpur) coalfield, (3) the Baluchistan coalfield, (4) the mica fields, (5) the manganese fields and (6), during recent years, the wolfram field. In looking over the fatal accidents both for 1915 and for the previous five years I find that there has been a gradual increase of accidents in No. 1 field. In No. 2 field, there was a decline during the first half of the period and a steady increase during the second half. The exact converse has been the case in No. 3 field, while the numbers have remained more or less stationary in Nos. 4 and 5 fields. The rate for wolfram (No. 6) is high, and varies considerably.

The Indian Mines Act was passed in 1901, but some two or three years elapsed before the reporting of accidents and the returns of labour approached to a fair degree of accuracy, and I consider that the end of the year 1915 may well be taken as the end of the first decade, as far as these matters are concerned. On plate A will be seen the death-rates per thousand persons employed for the ten years ending with 1915 both in all coal mines, and in the three fields I have indicated, respectively, and on plate B the same arrangement is shown for mines other than coal. It will be seen that coal mining in Assam and Baluchistan is a very much more hazardous occupation than in Bengal and in Bihar and Orissa. This is chiefly due to the naturally dangerous condition of the first mentioned mines. In connection with the diagram relating to the coalfields of Bengal and of Bihar and Orissa, it should be noted that during the ten years under review, the character of the mines has undergone a great change. There are many more deep shafts, mines have been extended greatly in area underground, and there is far more machinery in use.

The 163 accidents in the year under report involved the loss of 188 lives. This is a decrease of 3, as compared with the number of deaths in 1914.

With the exception of one accident, which was due to a sudden collapse of the workings, and caused death to ten persons sleeping in their huts on the surface, there was no accident causing loss of life on a large scale. In one case three persons and in fourteen cases two persons were killed.

Of these 163 accidents I regard (*a*) 73 as being due to misadventure, (*b*) 59 to the fault of the deceased, (*c*) 8 to the fault of fellow workmen, (*d*) 7 to the fault of subordinate officials and (*e*) 16 to the fault of the management.

As in 1914 there was only one fatality from explosion of fire-damp. In three other cases, explosions were reported, by which persons were slightly burnt.

There was also an ignition of gas at a coal mine in Bengal which was not reported, owing to the fact that the management did not consider an ignition an explosion. Upon reference to you, you were pleased to state that the intention of the rule is that all explosions should be reported, that I should continue to regard explosions as including the ignition of gas and that I should accordingly require notices of such minor explosions to be sent to me in accordance with the rule.

There were 85 accidents from falls of roof and side. Fifty-two of them occurred in the coalfields of Bengal and of Bihar and Orissa. Of these 29 were owing to the fault of deceased, generally in attempting to rob coal away from his proper working place and in 20 cases a fence was deliberately crossed.. It is worth noticing, comparing this class of accident in the Raniganj and Jharia fields that whereas the falls of roof were 14 and 11 respectively, these figures were 6 and 18, in the case of falls of side. This is to be attributed to the facts that in the Jharia field the seams are as a rule thicker, and the coal softer than in the lower field.

The number of accidents under the heading " In shafts " was slightly below the average of the previous five years, which is satisfactory, considering that every year sees more shafts brought into use. In the report for 1913 the necessity of providing fence gates on cages was urged upon managers. Their use, or the use of chains or similar contrivances, has increased greatly, but is not yet universal. One fatality at least, in the year under report, would have been avoided, had the cage been so fitted. Considering the class of workpersons that ride in shafts in India, failure to provide such contrivances is to neglect a simple, but, as has been proved, very necessary precaution. In England they are now compulsory.

The number of haulage accidents was also slightly below the average of the previous five years, and here again it should be remarked that more systems are constantly being installed, while old ones are being extended. Haulage accidents come under the preventable class to a large extent. Owing to the now practically universal custom of having selfacting runaway points or switches near the tops of haulage inclines, accidents owing to tubs running wild from the surface, which formerly figured largely in these reports, have lessened and in the year under report they were *nil*. It is to be hoped that they may be looked upon from now on as old history. With properly constructed switches, kept in proper repair, and, what is very important, free from obstruction, they should not occur.

The provision of couplings of a good type, their periodical annealing, and the provision of draw bars made of best iron, and, in steep inclines, of safety ropes or chains, stretched over the whole length of the set of tubs, and the keeping of engine planes in good order are the main preventatives of haulage accidents. Whatever their initial cause, the effect, as far as the person killed or injured is concerned, is generally the same. He is run over by a tub, or tubs. Under the special rules for coal mines, it is unlawful to travel on an engine plane, when the rope is in motion. But on planes which are actuated by a main rope only, it is impossible for anyone to tell, if he is inbye of the rope, whether the latter is in motion or not, and signals from the incline top to warn persons underground that the rope is working are necessary, in order that the above special rule can be properly observed. Much may also be done by the erection of gates, or movable barriers at the junctions of important levels with the engine plane. But the best remedy of all is the provision of travelling roads, independent altogether of the engine planes. The system on which the majority of Indian coal mines are laid out lends itself peculiarly to the arrangement of such travelling roads without much trouble or expense.

The death-rate per thousand persons employed was 1·04, while that of the preceding five years was 1·15. At coal mines only these figures were 1·14 and 1·32 and at mines other than coal 0·64 and 0·70. At coal mines in England during the ten years ending with and including 1914, the death-rate per thousand persons employed varied from 1·08 (lowest) to 1·69 (highest).

The death-rate per million tons raised at coal mines only was 10·15 while that of the preceding five years was 11·57. At coal mines in England during the ten years ending with and including 1914, the death-rate per million tons raised varied from 4·31 (lowest) to 6·37 (highest).

Of the 188 persons killed 155 were males and 33 were females.

The deaths occurring in each class of mine were as follows:—One hundred and sixty-six in coal mines, 6 in wolfram mines, 6 in mica mines, 5 in gold mines, 2 in manganese mines, 2 in copper mines and 1 in tin mines.

One person lost his life by explosion of firedamp, 51 by falls of roof, 42 by falls of side, 17 in shafts, 7 by explosives, 3 by falling into water, 17 by haulage, 13 by other accidents underground and 37 on the surface.

A list of these persons appear in Appendix II, Table I. In addition to them there were 25 others, causing the death of 27 persons. These also appear in Appendix II, Table I, but are listed separately, a reason being given in each case for their exclusion from the statistical tables. They include 5 children, under 12 years of age, drowned on the surface. During the last ten years 46 children have been so drowned. Of this number 17 have been drowned in colliery boiler feed water tanks. These are small cisterns with bricked walls. As a rule they have been more or less fenced of recent years, but the children get through the fences, which are often found down or in a dilapidated condition. All such tanks should have the walls carried 3′ 6″ above the level of the ground, and no ashes or debris should be allowed to accumulate round the walls.

In the Bengal and Bihar mines, where most of the statistical accidents occur, there were 129 deaths compared with 119 in 1914.

Each accident is briefly described in Appendix II, Table I, but the following are reported on at greater length. The numbers refer to the numbers in the appendix.

EXPLOSIONS OF FIRE-DAMP.

No. 1.—Bengal Coal Company Limited's Sodepur coal mine.

This explosion occurred in a gallery in the Dishargarh seam. A miner entered the gallery on a Monday morning, with a naked light and ignited an accumulation of gas. An explosion resulted and he was burnt so severely that he died in ten hours. There had been a night sirdar on duty and it was undoubtedly owing to his neglect that the explosion occurred. If he had inspected this gallery, as he should have done, he could not have failed to detect the gas. He and two other men were prosecuted by the management for breaches of the special rules, as detailed in Section IV of this report.

Equitable Coal Company, Limited's Dishargarh coal mine.

The circumstances attending this explosion, by which three men were burnt, though fortunately without fatal results, are of a somewhat unusual character. It is illustrated by plan A. Gas accumulated in a goaf and overflowed into a rise gallery, where it was ignited by a naked light.

The seam is the Dishargarh seam and in this part of the mine it attains a thickness of 14′ 6″. The dip is 1 in 5·5.

The chief work done recently in the vicinity was the goafing of some of the pillars, as shown on the plan.

The explosion was initiated in the gallery, marked K. No work had been done in this gallery for two years, until three days before the explosion, when it was decided to restart it. On the third day, at about 1 P.M., after three men had been at work for five hours, engaged in dressing the sides and roof, preparatory to driving the gallery forward, they were all suddenly burnt. They would not admit that any of their lights ignited the gas, and stated that a blue flame appeared and travelled down the dip road towards the goaf.

Fortunately no one was working in the goaf at the moment. All the workpeople, about 30 in number, had shortly before proceeded to the point, marked M, to get tubs. A subordinate official, who was with them, stated that he heard a report and saw a blue flame, swaying backwards and forwards near the roof of the goaf. This end of the goaf marked the limit of the explosion in his direction.

No evidence of force was discernible and, although the mine, in the vicinity of the explosion, was dry and fairly dusty, there was no evidence of coal dust having played any part in the explosion. Had it been otherwise, a serious catastrophe might have occurred, as the mine is one of the most extensive in India.

The source of the gas was not difficult to trace. It was found subsequently in considerable quantities in the goaf at the point N and there is no doubt that, shortly before the explosion, gas drifted through the extension of the goaf which was being formed by the extraction of the pillar J, and ascended to the gallery K, where it met the naked lights of the injured persons.

There was no definite coursing of the air current in these particular galleries. As will be seen, the main intake was close at hand, and if the air had been coursed, its natural direction, in accordance with the general scheme of ventilation in the mine, would have been along No. 82 level to K and then past J and along the goaf edge. As, however, the air was stagnant, the gas gradually flowed out of the goaf and ascended to K.

The goaf shown cross-hatched on the plan had been formed, not by the extraction of pillars, but by breasting into the solid rib of coal. In the course of the inquiry, it transpired that when the galleries had been driven along this rib, some nine years previous, gas had been given off, and brattices or curtains had to be put up to carry the ventilation into these galleries.

As a rule, in mines where gas occurs only occasionally and in small quantities, it is not expected that it will be found when pillar extraction or goafing is in progress, for the enclosing galleries, as time goes on, drain the pillars effectually. In this case however, where solid coal, in which gas had been found at the time of the first driving, was being breasted, the occurrence of gas was not unlikely, and the fact that this portion of the mine was being worked with naked lights—except for inspection with a safety lamp by officials —while at the same time no definite scheme for coursing the ventilation round these particular galleries had been arranged, is regrettable. The agent admitted that he remembered that gas had been found in the first driving about 1906. He forgot to inform the manager, who was appointed only in the early part of 1914. The latter therefore remained in ignorance of any possible danger, with the result that he did not anticipate any trouble with gas and made no provision for coursing the air.

The mine is dependent for ventilation on the heat of exhaust steam in the upcast shaft, and the current produced satisfies requirements. The main intake passes only four pillars away from the scene of the explosion and the air could easily have been directed to these galleries.

In mines such as this, where gas is found from time to time, even in such small quantities as not to compel the statutory observance of the rules relating to working with safety lamps only, it is of the greatest importance that the air should be coursed round every point in the working portion of the mine.

The coursing of the air, however, would not have affected the quantity of gas in the old goaf. When collapse of the roof occurs in a goaf, the air is sometimes compressed to a high pressure and projected considerable distances. The fact therefore that a goaf can be filled with gas in thismanner brings into prominence a possible danger that should cause goaves to be looked upon as suspected areas in all seams that are liable to give off gas.

Once the timber is withdrawn, a goaf becomes a prohibited area and its condition, as far as the presence of gas is concerned, can only be ascertained, by testing for it at the edges. Such tests should invariably be made. This is distinctly a lesson to be learnt from this accident.

FALLS OF ROOF.

No. 11. Hariladih Coal Company, Limited's Akhalpur coal mine.

This accident is illustrated by plan B. A fall of roof occurred at a junction of four galleries, two of which were 23 feet wide, the other two being 14 feet and 12 feet wide, respectively. The extent of the fall was 29 feet by 20 feet by 4′ 6″ (thick). The roof was entirely unsupported. A man happened to be under it and he was killed instantly.

This roof was not a good roof. It will be seen from the section on the plan that overlying the coal is a bed of weak shale. It is because this shale cannot be relied on that 2 or 3 feet of roof coal is left under it, the latter being a stronger stratum than the shale. The best of coal roofs, however, owing to the joints and slips that run through them, cannot be relied upon in such wide places as this was. These galleries should certainly have been supported.

No. 18.—Raniganj Coal Association, Limited's North Kustore coal mine.

This accident is illustrated by plan C. Some coolies were extracting a pillar by the process of undercutting it and leaving roof coal to be supported temporarily on props. These props would afterwards have been withdrawn and the roof coal allowed to fall.

It will be seen from the plan what a large area of roof coal was thus supported. The number of the props was sixteen. No diagonal sprags were used.

An area 28 feet by 14 feet by 0 feet to 4 feet (thick), suddenly collapsed, swaying out seven of the props. One miner was killed and a sirdar was severely injured. It is fortunate that the loss of life was not greater. The area which collapsed had loose ends on the north and south, and the fall disclosed a smooth joint or slip on the west side.

The area of roof coal was not only insufficiently supported vertically by the sixteen props, but it was entirely unsupported horizontally by sprags. Owing to the absence of such support the roof collapsed, swaying out such props as were under it.

This system of working is an unsafe one. Accidents have occurred from the same cause at this and neighbouring mines owned by this Company. In 1908 two similar accidents caused the loss of 15 lives. Both then and in 1911, the management stated they intended to alter the system. They have since this accident again given an undertaking to work in a safer manner, and it is to be hoped that the undertaking will be observed faithfully, and that such accidents will be avoided in future.

FALLS OF SIDE.

No. 58.—New Beerbhoom Coal Company, Limited's Chinchuria coal mine.

The under-manager of this mine, when making his morning round, noticed that the corner of a coal pillar was dangerous. He gave orders to the assistant that no work was to be done there. He permitted work to be done on the opposite side of the pillar and a chalk mark was placed on the pillar to show how far the miners could advance on their day's work. In the course of the day, a miner, against the advice of his companions, went round to the dangerous corner and began to work at it, with the result that two tons of coal suddenly fell upon him and killed him outright.

By general and by special rule it is enacted that any place which is not in actual use, or course of working and extension, shall be fenced off. This rule, generally speaking, has to be interpreted in a fair spirit, but any place which is not in actual course of working, because to work it would be dangerous, should invariably be fenced under these rules. There is no guarantee whatever that a miner will realise the importance of a chalk mark, whereas to cross a fence is an offence punishable under the special rules, and the existence of such fence should therefore act as a much greater deterrent.

No. 93.—Damuda Coal Company, Limited's Lutchipur coal mine.

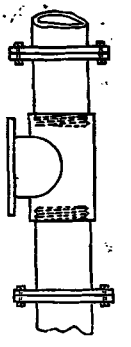
An onsetter had loaded a cage at the shaft bottom and was tying a metal token to the tub, when a piece of coal fell from the surface, a distance of 376 feet, on to his head.

Investigation of this accident disclosed the fact that the lateral distance between the edge of the protection board at the shaft bottom and the cage was ten inches. This is too great a distance, and where such is adopted an accident may happen at any time. With properly tightened guides, there is no reason why the distance should exceed six inches.

No. 96.—East Indian Coal Company, Limited's South Bulliari coal mine.

This accident occurred in a shaft, 600 feet deep and recently sunk. At the bottom was a large electric sinking pump. This was raised up and down the shaft by a rope, attached to a steam winch on the surface, which passed round a pulley at the pit top, round another pulley at the pump and was then attached to the headgear on the surface.

The delivery column consisted of steel pipes, 6 inches in diameter. These rested on the pump and, when the latter was raised or lowered, the column was raised or lowered with it, short distance pieces being kept at the surface to make the necessary adjustments.



Some of the pipes had screwed flanges and others lap-welded flanges. There were twelve bolts to each joint. Half way up the pit each half of the column was screwed into a T piece, thus :—

On the occasion of the accident, it became necessary to lower the pump and column down into the sump. In order to do this it was necessary to pass them between the buntons supporting the cage platform at the coal seam inset. This the men in charge failed to do with the result that a portion of the pump frame came down on a bunton, the pump heeled over, causing a pipe, 18 feet long, 6 feet above the pump, to buckle.

The engineer of the mine inspected the whole of the column and came to the conclusion that this was the only damage and he made arrangements to change the buckled pipe. He suspended the whole column from the head gear by means of a pulley block, and proceeded to change the pipe. Just as the operation was on the point of being completed, by raising the pump to the column, the latter parted at the T piece mentioned above, and the lower half of the column fell to the bottom of the shaft, 40 feet below. There were seven men engaged at the work of changing the pipe. They all fell or jumped into the water in the pit bottom. Six were rescued, two of them being injured. The seventh man was killed, and his body was not recovered for some weeks.

It was found that the threads of the screwed joint in the lower portion of the T piece had stripped. It is possible that when the pipe buckled, the T piece was strained, or it may have been the weak link in the chain for some time.

There were circumstances connected with this accident which made it difficult to do the work at the time in any other way, but to suspend a column of 6 inch pipes 600 feet long, especially when there are screw flanges and T pieces, must involve risk, and the column should be attached and supported at or near the bottom end, whenever possible. A similarly caused accident occurred in 1913 when two lives were lost. Arrangements have since been made at South Bulliari to obviate the necessity of suspending the column from the top.

The tendency of Indian mining to-day is all in the direction of deeper and heavily watered shafts, necessitating pumps, delivery columns, etc., of a more massive character. Arrangements to cope with break downs in such cases cannot, as a rule, be improvised, the way to deal with them in a safe and proper manner must be anticipated, and the necessary tackle provided.

HAULAGE.

No. 122.—Equitable Coal Company, Limited's Dishargarh coal mine.

This accident resulted in the death of a tub rider, owing to a set of loaded tubs being derailed on its way up an incline. In jumping off he slipped and fell between the tubs.

The duty of a tub rider, usually, is to attach and detach ropes, and to signal for the set to be stopped, should it be derailed or anything untoward occur. It is a dangerous occupation, and many such men have lost their lives all over the world. In England their employment is now prohibited, if the speed of set exceeds 3 miles per hour. Since the accident, riders have been dispensed with at this mine and apparatus for rerailing tubs automatically has been installed.

BY SURFACE MACHINERY.

Nos. 138 and 139.—Ghusik and Muslia Collieries, Limited's Ghusik coal mine and the Sijua Coal Company, Limited's Sijua coal mine.

In the first of these occurrences twelve men were lowering a Lancashire boiler down the slope of a railway embankment, by means of a hand winch. The men were suddenly overpowered, the handles of the winch commenced to revolve at great speed, and one man was struck by one of them and killed.

It was discovered on inquiry that the winch was not provided with a brake strap, and that the safety pawl on the racket could only come into action automatically, when a load was being raised and not when it was being lowered. The only way to bring the pawl into action was to do so by hand. Immediately after the accident this was done, with the result that the winch was destroyed.

In the second occurrence a boiler was being raised up the slope of an embankment by means of a hand winch, when the foundation bolts of the winch broke. The winch overturned and the eight men at the handles were hurled to the ground, one of them being killed. It transpired that although the bedplate of the winch was provided with eight bolt holes, only four bolts were used. The force of which can be applied by eight men is too much for a hand winch of this description.

Accidents arising out of the use of hand winches have been reported upon before. They are generally the result of attempting to do work with gear insufficiently strong for the purpose.

No. 140.—Burelia Coal Company, Limited's Burelia coal mine.

A man was struck and killed by a belt pulley forming part of a screening plant. The pulley was 4 feet in diameter and travelled at 212 revolutions per minute.

Up to the day before the accident this pulley was 6′ 6″ from the ground. On that day however the ground was raised, making the distance only 4′ $7\frac{1}{2}$″. This entirely altered the situation as regards bringing the pulley under the heading of dangerous machinery, which is required to be fenced.

A permanent fence was being put together at the time of the accident, but the erection of a temporary fence, until the permanent one was ready, would have saved this man's life. A temporary fence was fixed immediately after the accident. Inspectors are sometimes informed, when drawing attention to dangerous unfenced machinery, that arrangements are being made to erect fencing. No making of arrangements will prevent an accident, and if permanent fences are not ready temporary ones should be put up.

MISCELLANEOUS ON SURFACE.

No. 155.—The Hon'ble Maharaja Sir Manindra Chandra Nandi's Begunia Khas coal mine.

In this case a store-keeper babu and a store coolie were burnt to death by a fire in an oil godown. Two women were slightly burnt at the same time.

Since the accident the godown has been fitted with two doors. The adoption of this plan generally may prevent fatalities from the same cause in future. With only one door there is practically no chance of escape in the event of a fire in a building containing such inflammable material as is stored in an oil godown, and as such godown is an appurtenance of practically every coal mine, the matter has been considered one to which attention should be drawn.

No. 159.—Tata Iron and Steel Company, Limited's Bhelatand coal mine.

The boiler in which this accident took place is one of a pair of connected Lancashire boilers. The arrangement of the pipe connections is shown on plan D. The colliery enginewright instructed three coolies to clean out one of the boilers, which was empty, the other one being under steam. He secured the stop valve by means of a chain and padlock, took away the key of the blow off cock and placed it in the colliery workshop. Some three hours later one of these coolies, Dhuma Singh, told the fireman of the live boiler that he wished to draw off some water, which was lying in the front end of the empty boiler. The fireman replied that it was none of his business and that Dhuma Singh should go to the enginewright. As far, however, as can be gathered, Dhuma Singh then proceeded to open the blow off cock of the empty boiler, by means of the key of the blow off cock of the live boiler. This key was in the boiler house. Shortly afterwards the fireman opened the latter blow off cock, with the result that steam poured through into the empty boiler. All three coolies were scalded, and Dhuma Singh succumbed to his injuries.

The keys used for operating the two blow off cocks, one for each, were identical. They were of the simple pattern used for water mains and on railway carriages.

In the special rules for coal mines it is laid down that "when a boiler "connected with one or more boilers has to be entered by any one for cleaning "or any other purpose, the mechanical engineer, or other competent person, "shall shut down and secure the steam valve, blow off cock and feed water "opening by a lock or by such other means or appliance as will effectually "isolate the boiler, and shall prevent steam or water entering it through any "inlet until such time as the manhole covers have been refitted." It is not much use isolating a boiler and taking away the key, when a duplicate key is left in the boiler house.

The usual practice is to have the blow off pipes entirely separated or to arrange for each pipe to discharge into a common drain. In some installations, where the blow off pipes are connected, Hopkinson's isolation valves, permitting passage of steam outwards only, are fitted. These isolation valves were fitted on the steam valves of these boilers, as shown on the plan, but not on the blow off cocks.

No. 161.—R. A. Mucadam & Sons' Chanda coal mine.

This accident, which is illustrated by plan E, was the most serious accident in the year from the point of view of numbers killed and injured. These numbers were 10 and 6 respectively.

A large number of persons were lying asleep at night in a coolie barrack, which, it may be seen from the plan, was situated partially above the underground workings. At half past three in the morning, a considerable portion of these workings collapsed suddenly. The collapse extended to the surface, which subsided to a depth varying from one to seventy feet, over an area measuring 145 feet by 85 feet, and the western portion of the barrack was wrecked, the occupants being engulfed in the debris and subsided earth. Rescue operations were undertaken at once and within an hour all survivors had been extricated. One man actually rolled down the slope of the cavity into the mine workings, a fall of not less than 70 feet, and, on recovering his senses some hours later, walked out by the haulage incline. Seven bodies were recovered, and, as those of the other three had not been found after fifteen hours had elapsed, the Inspector of Mines, No. 1 Circle, advised the owner to discontinue the search, which was being attended with no small risks.

The seam in question is considered to be No. 12 seam and to be here 50 feet thick. The coal is hard and jointing is not pronounced. The seam dips at the unusually high angle of 1 in 1·8. The workings extend over an area measuring 250 feet from dip to rise and 600 feet along the strike. The coal pillars are stated to have averaged 30 feet square and the galleries 12 feet in width. The height of the galleries varied from 10 feet at the face to a maximum of 40 feet in the upper workings. The roof is sandstone and is considered to be sound. No falls of roof had occurred previously and props were only used occasionally. The manager, and a few persons employed in laying rails, had been underground in the main dip gallery, west of the collapse, on the previous morning, and they stated that they noticed nothing wrong. The Inspector of Mines, No. 1 Circle, had been underground 5½ months previously in connection with proposals for working under a railway line, and noticed no active sign of instability in the mine. After the accident he made underground inspections of the mine on two occasions, and except for two fractured pillars, hatched black on the plan, found the whole of the remaining portion of the mine to be intact. An examination of the cavity on the surface showed that the east and west sides of it coincided with dip joints, coated with mud carried by percolating water.

It is impossible now to ascertain the dimensions of the pillars which collapsed, but presuming that they averaged 30 feet square, with 12 feet galleries, the amount of coal left in the pillars was 51 per cent. This proportion is in accordance with the usual practice in the Jharia coalfield, and under normal circumstances it would probably have been ample at the moderate depth attained. The circumstances were however abnormal in the following respects:—(1) The pillars were unusually tall; (2) the dip was high; and (3) water was percolating in small quantities through joints extending to the surface. Owing to the steep dip, the weight of the overlying strata would not operate vertically, but at an angle approximating more to a right angle to the dip. As the pillars were vertical, the weight would tend to overturn them. They might have resisted this movement if the lateral support of the overburden had not been weakened by the existence of pronounced joints in the overburden, the sides of which were lubricated by mud carried by water percolating from the surface, as referred to in the preceding paragraph.

The general scheme of operations was in accordance with local practice. Similar and more extensive collapses took place at two adjacent collieries in 1912, but premonitory symptoms were detected by the officials and due precautions taken. In the present instance so far as the evidence goes there were no warning symptoms. There probably were such symptoms, but, as no one had passed through the affected area for at least thirty-nine hours before the collapse, they were not detected. Work on these highly inclined seams has attained importance only within the last few years. The stresses involved are difficult to calculate and there is not much accumulated experience to guide operators.

Considering all the facts, I do not think that anyone is to blame in this case.

Section IV.—Prosecutions and additions to the Act.

PROSECUTIONS.

Judgment was given in the following prosecutions during the year. Unless otherwise stated 'rule' means a rule under Notification No. 864-68-20, dated the 10th March 1904, being rules for the working of coal mines.

The owners and manager of the Central Kurkend Coal Company, Limited's Central Kurkend coal mine were proceeded against under rule 2 (*g*), rule 7 and rule 8, read with section 22 (3) (*e*), for failing to maintain a written daily record of the condition of the machinery, failing to keep unused galleries fenced, and failure to provide proper means of communicating distinct and definite signals on a haulage road. The manager pleaded guilty to the first charge, the second charge was not pressed, and the manager was held to be guilty on the last

charge. He was fined Rs. 75: in default seven days' simple imprisonment. The case against the owners was withdrawn.

The owner of Daroga Lal's Belanjabad coal mine was prosecuted under rule 12, read with section 22 (2) (*b*), for not furnishing a plan of the mine, after abandonment. He pleaded guilty and was fined Rs. 50: in default fourteen days' simple imprisonment.

An accident occurred on the 9th November 1914 at Nagendra Nath Mandal's Patiana coal mine, the working of which had been discontinued. A boy fell down a trial shaft and was drowned. The owner was prosecuted under rule 19 and under rule 8 of Notification No. 11793-103, dated the 30th December 1908, read with sections 22 (1) (*e*) and 22 (2) (*b*), for not properly fencing the shaft and for not notifying the occurrence of the accident. He pleaded that the mine was not being worked at the time and that he had given notice to the Police. He was fined Rs. 250 : in default rigorous imprisonment for three months and simple imprisonment for one month, to run consecutively.

Arising out of a fatal accident which occurred on the 7th November 1914 at the Butaria coal mine of Messrs. H. V. Low and Company, whereby a man was killed by a fall of earth from the side of a shaft, the manager was prosecuted under rule 24, read with section 22 (1) (*e*), for failing to securely case, line, or otherwise make secure the shaft. He pleaded guilty and was fined Rs. 20 : in default two weeks' rigorous imprisonment.

The Lakshmiganj Coal Company, Limited, was prosecuted under rule 2 of Notification No. 11793-103, dated the 30th December 1908, read with section 22 (3) (*e*), for not reporting the discontinuance of the working of their Lakshmiganj coal mine. The company was fined Rs. 40, the owners to undergo simple imprisonment for one month, in default.

The owner of Atma Singh and Company's Khalsa coal mine was prosecuted under rule 12, read with section 22 (2) (*b*), for failing to submit a copy of the plan of the workings, after the abandonment of the mine. The plan was submitted before the case was heard. He was fined Rs. 50 : in default fourteen days' simple imprisonment.

The owner of S. N. Laik's Niamatpur coal mine was prosecuted under section 13, read with section 22 (3) (*e*) for not appointing a qualified manager. The manager's permit had been cancelled by the Chief Inspector of Mines in India, but the mine was discovered at work six weeks afterwards, with the same manager. He was fined Rs. 150: in default rigorous imprisonment for two months.

The agent of the Nudkhurki Coal Company's Nudkhurki coal mine was prosecuted under rule 1 of Notification No. 11793—103, dated the 30th December 1908, read with section 22 (2) (*c*) for submitting an annual return which was not, to the best of his knowledge or belief, true. He was fined Rs. 50: in default seven days' simple imprisonment.

In his capacity as agent of the Isabella Coal Company's Isabella coal mine, the same person was proceeded against under the same rule and section, with reference to this mine. He pleaded guilty and was fined Rs. 20: in default four days' simple imprisonment.

The owner of Hem Chandra Dutt's Old Bamondiha coal mine was prosecuted under rule 19, read with section 22 (3) (*e*), for not fencing the tops of two abandoned shafts. He pleaded that he was under the impression that the fencing should be done by the owner of the surface. It was held that the owner of the underground rights is clearly responsible under the law if the provisions of the Indian Mines Act are not followed. He was fined Rs. 20: in default simple imprisonment for two weeks.

The owner of Kiron Chandra Dey's Trans-Barakar coal mine was prosecuted under rule 2 of Notification No. 11793—103, dated the 30th December 1908, read with section 22 (3) (*e*), for not reporting the discontinuance of the working of the mine. It was held that the case failed as being time barred under section 24. It was argued for the prosecution that this was a continuing offence, but the plea was not upheld.

The owner of the Central Kenda Coal Company's Central Kenda coal mine was prosecuted under rule 1 (*b*) read with section 22 (3) (*e*), for not maintaining proper arrangements for persons to ascend and descend at the second outlet of the mine. The owner had been addressed on the subject previously by the Inspector of Mines, No. 3 Circle, but although several reminders were sent, no notice was taken of the communication and three months afterwards matters were found to be in the same condition. He pleaded guilty and was fined Rs. 40: in default rigorous imprisonment for one month.

The owners of the K. M. Selected Coal Company's Kusunda coal mine were prosecuted under rule 45 of Notification No. 2968—82, dated the 21st April 1906, and section 13 (1), read with section 22 (3) (*e*), for working the mine without a properly qualified manager. There had been a recent change of Receivers, and the case was not pressed. They were fined Rs. 25.

The manager of the Poniati Coal Concern's Faridpur coal mine was prosecuted under rules 2 (*g*) and 4 (*b*), read with section 22 (2) (*e*), for failing to keep proper report books on the state of the machinery and the underground workings. An inspection disclosed the fact that in one case a daily report book had not been entered up for a fortnight but that the signature of the person reporting had been entered up for ten days in advance. In another case complete weekly reports had been made for two weeks in advance. He was fined Rs. 50: in default simple imprisonment for one month.

The owners of the Marleon Coal Company's Marleon coal mine were prosecuted under rule 19, read with section 22 (3) (*e*), for not fencing several inclines at the mine. At the time of hearing it was reported that the Company was no longer in existence and could not be traced. The proceedings were dropped.

The owner of Babu Talabar Mahaton's Karichotan and other mica mines was prosecuted under rule 1 of Notification No. 11793—103, dated the 30th December 1908, read with rule 22 (2) (*c*), for furnishing an incorrect annual return. He pleaded that the incorrectness was due to faulty arithmetic. This was accepted by the Court and he was fined one rupee.

Three owners and the manager of the Central Tentulia Coal Company's Central Tentulia coal mine were prosecuted under rules 3, 9 and 19, read with section 22 (3) (*e*), for not keeping the roof of the mine secure, for not keeping a plan showing the workings up to a date not more than six months previously, and for not fencing the top of a shaft, of a quarry and of an incline. The leading owner was fined Rs. 105, the other two owners were fined Rs. 25 each. The manager was fined Rs. 110. The leading owner was also prosecuted under section 15 (2), read with section 22 (3) (*a*), for not obeying an order made by the Inspector of Mines, No. 1 Circle, under section 15 (2), prohibiting the employment of women and children in the mine on account of its dangerous condition. He pleaded that he did not understand the purport of the order. In view of the fact that he had been fined under other counts, he was fined one rupee.

The owner of Babu Brojo Bhusan Trigunait's Ramkanali coal mine was prosecuted under rules 3, 7 and 19, read with section 22 (3) (*e*), for not keeping the roof of the mine secure, for not fencing unused galleries and for not fencing the top of an incline. He was fined Rs. 100.

The owner of Babu Pramotho Nath Chowdhury's Lakshmi coal mine was prosecuted under rule 19, read with section 22 (3) (*e*), and under rule 2 of Notification No. 11793—103, dated the 30th December 1908, read with section 22 (3) (*b*), for failing to fence the tops of three inclines and for failing to give notice of the discontinuance of the working of the mine. He was fined Rs. 55.

The part owner of the Brindabanpur Coal Company's Brindabanpur coal mine was prosecuted under section 13 (1), read with section 22 (3) (*e*), for not appointing a qualified manager. He had previously been warned. He was fined Rs. 75: in default fourteen days' simple imprisonment.

The following were prosecuted under rule 1 of Notification No. 11793 —103, dated the 30th December 1908, read with section 22(2) (*b*), for not submitting an annual return within the prescribed date :—

(1) The owner of the Dhansar Coal Company's Dhansar coal mine. Fined Rs. 45.

(2) The owner of Babu Note Bihari Naug's Chandore coal mine. Fined Rs. 40.

(3) The owner of the Thakar Coal Company's Sitla coal mine. Fined Rs. 40 : in default simple imprisonment for two weeks.

(4) The owner of Babu Pramatho Nath Chowdhury's Lakshmi coal mine. Fined Rs. 15.

(5) The owners of Messrs. Indur Subbarama Reddi and Company's Jogipalli mica mine. After consultation with the Collector of Nellore district, the case was withdrawn.

Information was received regarding the following judgments in prosecutions initiated by managers against employés for breaches of the special rules, made under section 21 of the Act.

A miner at the Pench Valley Coal Company, Limited's Barkui coal mine was prosecuted under rule 6, read with section 22(1)(*e*), for crossing a fence. The case arose out of a fatal accident by fall of roof which proved fatal to a companion who accompanied him. He was fined Rs. 20 : in default two weeks' imprisonment.

Seven miners at the Barakar Coal Company, Limited's Loyabad coal mine under rules 5, 7 and 21, read with section 22(3)(*e*), for doing an act likely to endanger his own safety, or of the safety of any other person, or of the mine in which he is employed, for crossing a fence, and for cutting coal from a pillar without being authorized. Two absconded, the remainder were fined Rs. 5 each : in default simple imprisonment for one week. Another miner at this mine was prosecuted on the same counts as the above. He absconded.

A miner at the Reliance Coal Company, Limited's Charanpur coal mine was prosecuted under rule 15, read with section 22(3)(*e*), for working in a place other than the one in which he had been ordered to work. The case arose out of a fatal accident by fall of roof by which another miner, who accompanied him, was killed. He absconded.

A surveyor at the Tata Iron and Steel Company, Limited's Choitodih-Malkera coal mine was prosecuted under rule 34, read with section 22(3)(*e*), for failing to make an accurate plan of the underground workings and to make an accurate survey, as directed by the manager. He was fined Rs. 50.

A sirdar at the Bengal Coal Company, Limited's Sodepur coal mine was prosecuted under rules 31 and 37, read with section 22(1)(*e*), for not complying with lawful orders issued by the manager or other official empowered to issue the same, and for not making a proper inspection of his district. He was sentenced to three months' rigorous imprisonment. Another sirdar was prosecuted under rule 37 read with section 22(3)(*e*), for not taking proper precautions to keep work persons at the station appointed until he had finished his inspection of the workings. He was fined Rs. 2 : in default 14 days' simple imprisonment. These cases arose out of a fatal accident by explosion of gas, as described in part II of this report. The first accused was the night sirdar and should have detected the gas.

A sirdar at the Bengal Coal Company, Limited's Sodepur coal mine was prosecuted under rules 3 and 37, read with section 22 (3) (*e*), for not obeying lawful commands and failing to make a proper inspection of his district. He was absent from work without leave. He was fined Rs. 5 : in default simple imprisonment for one month.

A dust carrier at the New Beerbhum Coal Company, Limited's Borrea coal mine was prosecuted under rules 7 and 15, read with section 22 (3) (*e*), for crossing a fence and for working in a place other than the one in which he was ordered to work. The case arose out of an accident by fall of roof which

proved fatal to another miner who accompanied him. He absconded and has not been traced.

Three permits granted to managers of small mines and two authorizations to manage more than one mine were cancelled during the year, on account of mismanagement, disclosed by inspection.

ADDITIONS TO THE ACT.

During the year special rules under section 21 of the Act were established at 318 coal mines, making a total of 385, and at 21 manganese mines.

Section V.—General Remarks.

HEALTH AND SANITATION.

In the report for 1914 it was stated that the year passed without any serious outbreak of cholera. The situation in the year under report, however, was not so satisfactory. In (*a*) the Bengal coalfields there were at least 551 cases and 274 deaths, and in (*b*) the Bihar and Orissa coalfields 734 cases and 415 deaths. These figures for smallpox were (*a*) 279 and 35 and (*b*) 2,154 and 334.

An outbreak of cholera which occurred in Jharia Bazar during the month of March, and which caused 34 deaths, was reported upon by the Deputy Sanitary Commissioner, Chota Nagpur Circle. He considered that the infection was first conveyed from an outside area, that there was no evidence that the outbreak was spread by infected water, but that the distribution of cases pointed to the infection having been conveyed from house to house by contact with infected patients and by flies, with which he found the bazar teeming.

An outbreak of cholera at a colliery village at Giridih resulted in 39 deaths. The disease was conveyed by infected persons from the Jharia coalfield.

The Jharia Board of Health held fifteen meetings during the year. There was one change among the non-official members of the Board, Mr. W. S. Elphinstone replacing Dr. F. Simpson, who went on active service. The most important step taken was the appointment of a Chief Sanitary Officer, Dr. G. W. Thompson, M.B., D.Ph., who took up his duties on the 10th June 1915. Among many other subjects that have claimed the Board's attention have been the notification and suppression of epidemics, improvement and conservation of water supply, the improvement and sanitation of markets and destruction of condemned food stuffs, and the housing of colliery labour.

The Asansol Board, which was formed at the close of 1914, held its first meeting on the 27th March 1915. The official members were the District Magistrate, the Sub-divisional Officer, the Civil Surgeon and the Inspector of Mines, No. 2 Circle, and the non-official members were Messrs. F. J. Agabeg, Mr. T. Samson, Dr. W. P. O'Connor, and Babu Nibaran Chandra Sircar. Five meetings were held during the year and much preliminary work was done. It was decided to appoint a Chief Sanitary Officer.

Outside the coalfields of Bengal and of Bihar and Orissa, except for malaria in certain camps, the general health of miners in British India was good.

The rainfall in the Jharia coalfield was 38·83 inches; in the Giridih coalfield it was 38·68 inches; and in the Raniganj coalfield it was 39·43 inches. These figures for 1914 were 44·33, 42·55 and 46·06 inches, respectively.

MINING EDUCATION.

During the year under report, the important step was taken of dissolving both the Mining Sub-committee of the Board of Visitors of Sibpur College and the Mining Educational Advisory Board, and forming an entirely new Board, under the title of the Mining Education Advisory Board, to advise the Govern-

ments of Bengal and of Bihar and Orissa on all questions concerning mining education in these provinces both at Sibpur college and in the coalfields. Its composition was as follows: The Chief Inspector of Mines in India (Chairman); the two senior Inspectors of Mines; the Superintendent of Industries, Bengal; the Director of Industries, Bihar and Orissa, when such officer is appointed, and pending his appointment Mr. F. Walford, Principal of the Bihar School of Engineering and Inspector of Technical Schools; four representatives of the Indian mining community, including the Chairman of the Indian Mining Association; the Principal, Civil Engineering College, Sibpur (Secretary *ex-officio*); and the Professor of Mining, Civil Engineering College, Sibpur (Assistant Secretary *ex-officio*).

Of the four non-official members, three were nominated by the Indian Mining Association, and one by the Indian Mining Federation, which is the principal association of Indian colliery owners. The members in 1915 were Messrs. E. W. Bowrey (Chairman, Indian Mining Association), G. Miller, A. S. Thomson and Babu Narendra Nath Mukerji.

By this change mining education in the coalfields was brought directly under the Principal of the Civil Engineering College, Sibpur.

The new Board held one meeting at the close of the year. Three meetings were held by the old Board.

The Professor of Mining at Sibpur College reported that at the end of the session 1914-15, three students were granted diplomas, and three were passed from the junior to the senior course. Thirteen new students entered upon the junior mining course, and of these twelve sat for the annual examination at the end of the session 1915-16, five being promoted to the senior course. Five students sat for the diploma, all being successful.

The preliminary course mentioned in the last report as having just been sanctioned, has proved very successful in attracting students to the mechanical, electrical and mining branches of the college. Twenty-five sat for examination in March, and of these 17 passed, 12 of them joining the junior mining course. Probably about twenty new students in all will join the junior mining course for the session 1916-17. In the present session's preliminary course there are 40 students.

The mining camp in November and December was pitched at Bhaga in the Jharia coalfield. It was attended by 17 students from the college. The special class in mine surveying, in connection with this camp, was continued, the majority of the students being young men in the coalfields, who left their work temporarily to undergo this course. The number that can be admitted to this class is strictly limited to the amount of accommodation in camp and to the time available for teaching at the disposal of the staff. The class last year was 10, of which one was from the college and 9 were from the coalfields.

Mr. H. C. Read officiated as Professor of Mining until the 5th August. Mr. E. H. Roberton resumed duty, on return from furlough, on the 1st November.

Lectures in the coalfields were again given at five centres during the session 1914-15. The average number of attendances was 18·10. An average number of over 90 students therefore received instruction each week.

The sessional examination was held simultaneously at the various centres on the 7th June 1915, the examiner being Mr. H. C. Read, officiating Professor of Mining at Sibpur College. Thirty-four candidates presented themselves for examination of whom 18 were successful in passing. The highest marks were obtained by Babu Sibnarayan Pal (Raniganj centre). The examiner reported as follows:—"On consulting last year's report I am of opinion that the improvement shown has not been generally continued. The tendency apparent last year to rely on book knowledge has been substituted by the memorising of the synopsis, as is evidenced in their answers, which, in some cases, were entirely confined to this method. The lack of primary education was again painfully evident. The absence, too, of close study and technical knowledge by the examinees, who should have known better, is remarkable. A general improvement has been shown in sketching."

In addition to the English lectures, Babu Hemanta Kumar Sen was again appointed to deliver lectures in Bengali at six selected centres. A course of five lectures at each centre was given.

MINING AND GEOLOGICAL INSTITUTE OF INDIA.

The total membership of the Institute at the end of the year, including subscribers, was 276. In addition to the Annual Meeting, three ordinary general meetings were held during the year for the reading and discussion of papers and an excursion was made to Bhulanbarari and the neighbouring areas in the Jharia coalfield. The library has been removed to the coalfields and divided into two sections, one at Sitarampur and the other at Jharia. The Government prize for the best paper during the year was divided equally between Mr. R. H. Husband for his paper on "Practical notes on the various systems of underground haulage applicable to Indian mines" and Mr. R. S. Davies for his paper on "Hydraulic packing at Ballarpur colliery." Three medals—a gold, a silver and a bronze—are offered this year for the best papers read before the Institute on specified subjects.

ASSOCIATION OF COLLIERY MANAGERS IN INDIA.

The membership at the end of the year was 168, which is an increase of 6 on that of 1914. I have been informed by the Secretary that fifteen meetings of the Committee have been held during the year, at which various matters pertaining to the interests of managers have been discussed. General meetings have also been held and visits have been made to collieries and works.

BOARD OF EXAMINERS FOR COAL MINE MANAGERS' CERTIFICATES.

During the year, a change occurred among the non-official members of the Board, through the resignation, on retiring from India, of Mr. R. J. Browne. Mr. Browne was a member of the Board for over four years. He was one of the local examiners at the first examination held by the Board and undertook the duty subsequently, on more than one occasion. His services throughout were of the greatest value. He was succeeded by Mr. T. H. Ward. The tenure of office of Mr. S. Heslop expired during the year. He was re-elected for a further term of office. The Board, therefore, at the end of the year consisted of the Chief Inspector of Mines in India (*ex-officio* President) and Messrs. S. Heslop and T. H. Ward.

Five meetings were held during the year. There were fifteen first class and two second class applicants for Indian certificates of competency in lieu of English certificates. They were all granted certificates.

One first class certificate of service was granted during the year.

At the examination for colliery managers' certificates of competency held at Dhanbad in the East Indian Railway Institute on the 17th, 18th and 19th March 1915, thirty-nine candidates sat for first class and fifty-six for second class certificates. Certificates of competency were granted to five first class and eight second class candidates. The examiners were Messrs. J. S. Kean, W. J. Greener and R. R. Simpson, Inspector of Mines in India, No. 1 Circle (official examiner and secretary).

MINING BOARDS IN BENGAL AND BIHAR.

The Bengal Mining Board held four meetings during the year when the following subjects were considered:—

(1) Amendment of the Indian Mines Act, 1901; (2) amendment of rule 28 of rules regarding managers and their certificates; (3) amendment in Part IV of the rules issued by the Government of Bihar and Orissa under section 11 of the Bengal Mining Settlements Act, 1912; and (4) method of assessment under the Bengal Mining Settlements Act, 1912.

The non-official members were Messrs. W. Graham and Glen George.

The Bihar and Orissa Mining Board held three meetings during the year when the following subjects were considered:—

(1) Draft rules framed under section 11(2)(*c*) of the Bengal Mining Settlements Act II, 1912; (2) amendment of rule 28 of rules regarding mine managers and their certificates; (3) cancellation by District Officers of licenses held by proprietors and managers for using explosives; (4) the amendment of the Indian Mines Act; (5) the consideration of rule 19 of Notification No. 864-68—20, dated the 10th March 1904; and (6) the question of the legal advice available for the guidance of the Chief Inspector of Mines.

The non-official members were Messrs. T. H. Ward and R. G. M. Bathgate.

LAND ACQUISITION (MINES) ACT, 1885.

The work in connection with this Act continues to form a large proportion of the work of the Department of Mines. The number of original cases disposed of altogether at the end of 1915 stood at 264. In the majority of cases in which the mine has been worked contrary to the conditions laid down in the Local Government's declaration, specifications of protective works were drawn up. These works often involve the mine owner concerned in considerable expenditure. Very much of this could be obviated if those in supreme control of collieries would insist on all pillars and galleries under acquired land being measured up every six months and a plan being laid before them. The mere fact that such an order was extant would act as a considerable deterrent. Some firms have adopted the practice. At some mines the boundary of the acquired land is marked on the roof underground by a broad line. This at any rate takes away from the subordinate staff the opportunity for excuse on the ground that they did not know the position of the boundary underground.

OFFICIAL DUTIES IN 1914.

Mr. G. F. Adams was Chief Inspector of Mines in India.

Mr. R. R. Simpson was Inspector of Mines, No. 1 Circle. He was granted privilege leave from the 24th to the 31st October.

Mr. G. C. Leach was Inspector of Mines, Nos. 2 and 3 Circles.

Mr. C. J. E. David, Inspector of Mines in India, who was granted six months' combined leave from 5th October 1914, resigned his appointment in this Department, with effect from the 4th April 1915, the date on which the combined leave granted to him expired.

Mr. J. J. Turnbull, Junior Inspector of Mines, worked under the Inspector of Mines, Nos. 2 and 3 Circles. He was granted privilege leave from the 18th August to the 10th October.

Mr. J. Coggin Brown, Assistant Superintendent, Geological Survey of India, was appointed to be an Inspector of Mines in Burma, with effect from the 19th November 1915.

I have the honour to be,

SIR,

Your most obedient servant,

G. F. ADAMS,

Chief Inspector of Mines in India.

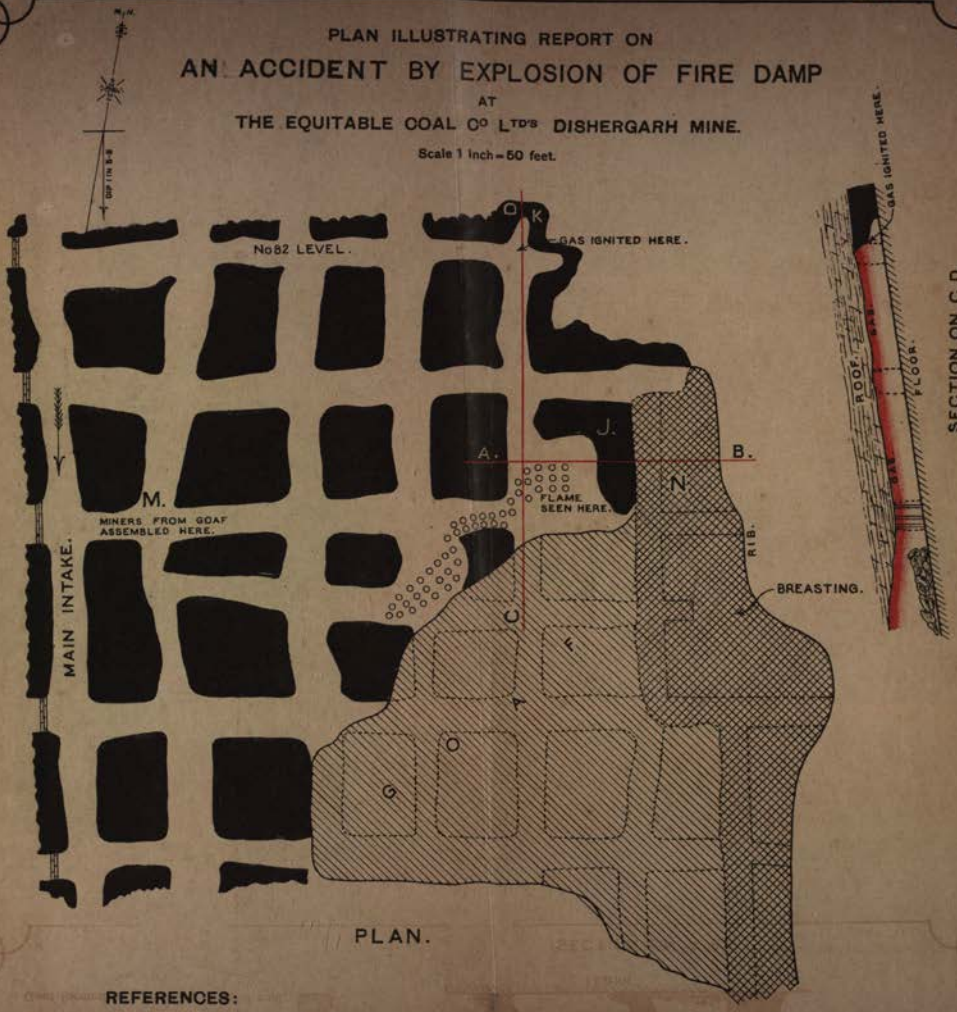
PLAN ILLUSTRATING REPORT ON

AN ACCIDENT BY EXPLOSION OF FIRE DAMP

AT

THE EQUITABLE COAL Co LTD'S DISHERGARH MINE.

Scale 1 inch = 50 feet.



PLAN.

REFERENCES:

Pillars of coal.....

Stoppings.....

Props.....

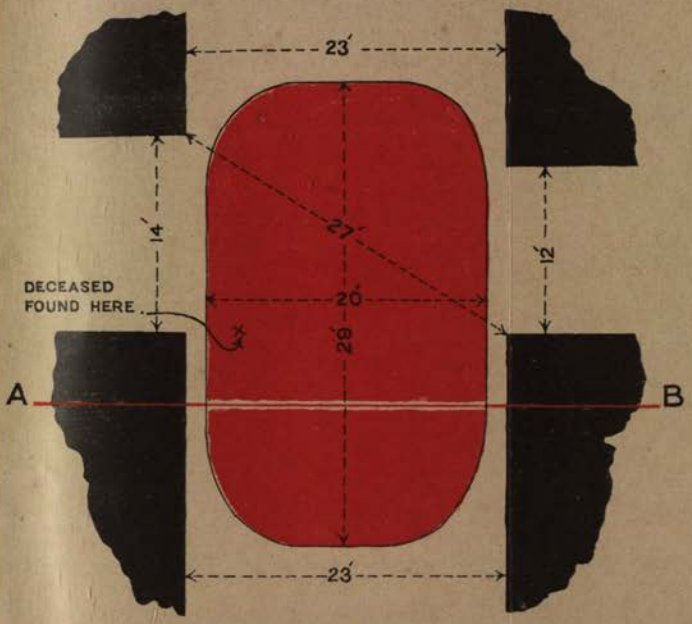
Goaf formed from pillars.....

Goaf formed by breasting in solid coal.....

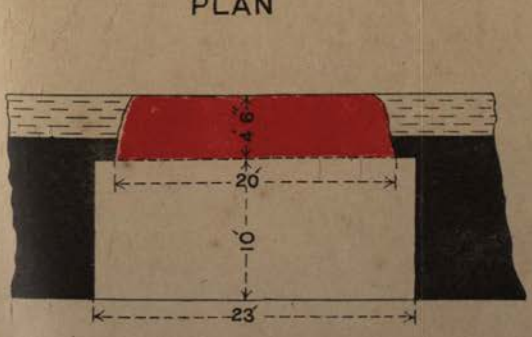
SECTION ON A.B.

PLAN ILLUSTRATING REPORT ON
FATAL ACCIDENT BY FALL OF ROOF
AT
HARILADIH COAL Co LTD'S AKHALPUR MINE.

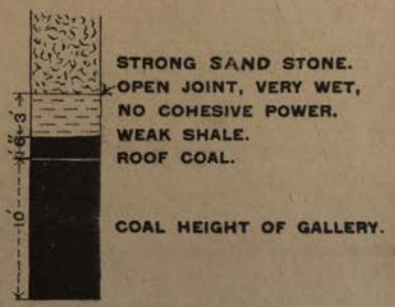
Scale 1 Inch = 10 feet.



PLAN



SECTION ON A B.



SECTION OF STRATA.

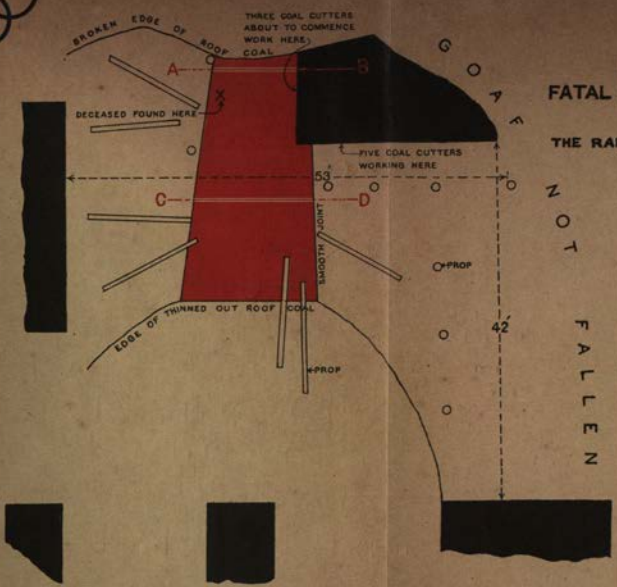
REFERENCES

Pillars of coal

Roof which fell

PLAN ILLUSTRATING REPORT ON FATAL ACCIDENT BY FALL OF ROOF COAL AT THE RANIGANJ COAL ASSOCIATION LTD'S KUSTORE MINE

Scale 1 Inch = 10 feet.



PLAN

SECTION ON A.B.

SECTION ON C.D.

REFERENCES.

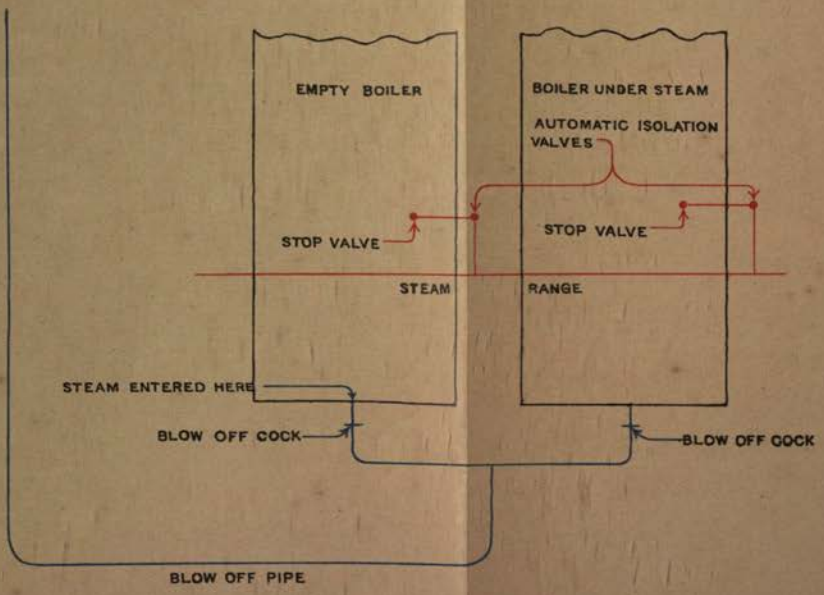
Props ..... ○

Roof coal which fell .....

Pillars of coal .....

Smooth joint .....

PLAN ILLUSTRATING REPORT ON
FATAL ACCIDENT BY AN INRUSH OF STEAM
AT
THE TATA IRON & STEEL COMPANY LTD'S BHELATAND MINE.



PLAN ILLUSTRATING REPORT ON

FATAL ACCIDENT BY SURFACE SUBSIDENCE

AT

MESSRS. R. A. MUCADUM & SONS' CHANDA MINE.

Scale 1 Inch = 50 feet.

PLAN

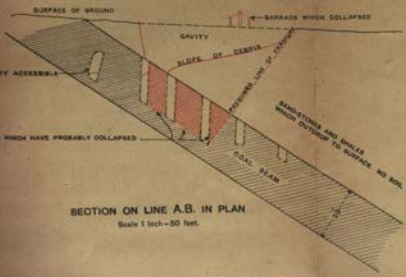
REFERENCES:

Pillars and galleries shown thus .....

Area of surface subsidence shown thus .....

Underground area filled with debris shown thus .....

Pillars partially collapsed shown thus .....

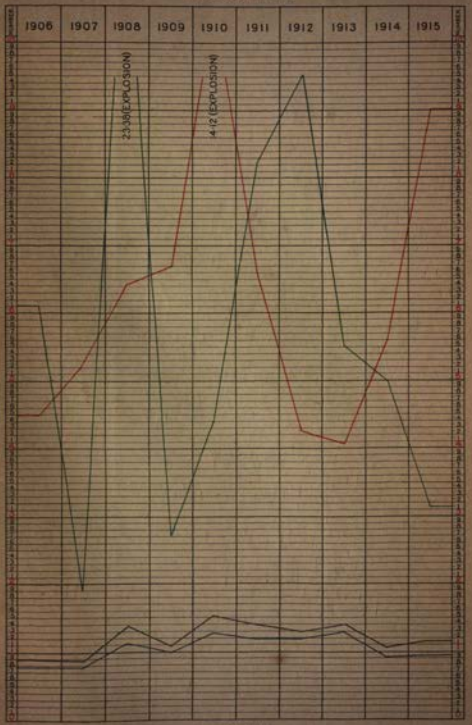


SECTION ON LINE A.B. IN PLAN

Scale 1 Inch = 50 feet.

PLATE A.

SHOWING DEATH-RATES PER THOUSAND EMPLOYED IN COAL MINES

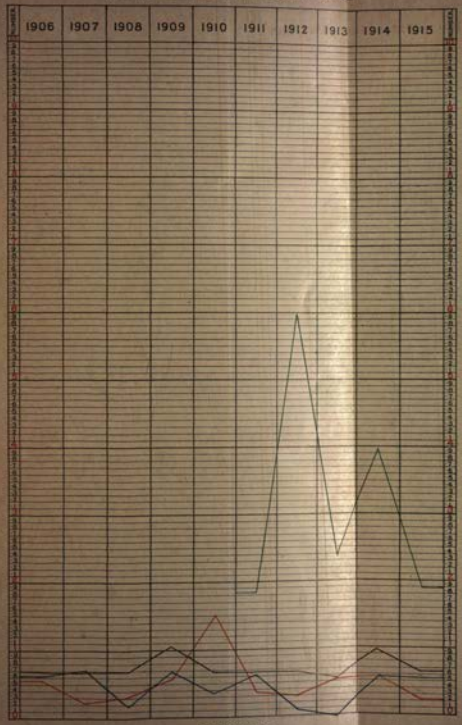


REFERENCES:

All coal mines
Mines in Bengal and in Bihar and Orissa
Mines in Assam (Lakhimpur)
Mines in Baluchistan

PLATE B.

SHOWING DEATH-RATES PER THOUSAND EMPLOYED IN MINES OTHER THAN COAL MINES



REFERENCES:

All mines other than coal mines
Mica mines
Manganese mines
Wolfram mines

APPENDIX I.

STATISTICS OF MINES AND MINERALS.

Table No. 1.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1915.

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							A.—COAL.									
							Tons									
Assam	Lakhimpur	8	5	3	6	9	308,071	1,632	251	...	1,883	569	267	48	884	2,767
	Naga Hills	1	...	1	1	2	2,872	42	...	...	42	65	5	...	70	112
	Total	9	5	4	7	11	310,943	1,674	251	...	1,925	634	272	48	954	2,879
Baluchistan	Kalat	3	...	3	3	3	3,047	27	...	...	27	10	...	...	10	37
	Loralai	1	...	1	...	...	287	15	...	...	15	8	...	...	8	23
	Quetta-Pishin	9	...	9	7	7	4,491	69	...	...	69	41	...	...	41	110
	Sibi-Khost	8	2	6	5	12	35,782	481	...	...	481	292	...	20	312	793
	Total	21	2	19	15	22	43,607	592	...	...	592	351	...	20	371	963
Bengal	Bankura, Raniganj	2	...	2	2	4	5,197	30	15	...	45	14	12	...	26	71
	Birbhum „	1	...	1	...	...	1,944	10	6	...	16	10	2	...	12	28
	Burdwan „	173	146	27	160	364	4,968,319	13,132	9,759	215	28,106	8,496	5,002	390	13,888	41,994
	Total	176	146	30	162	368	4,975,460	13,172	9,780	215	28,167	8,520	5,016	390	13,926	42,093

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1915—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							A.—COAL—*contd.* Tons.									
Bihar and Orissa	Hazaribagh: Bokaro-Ramgarh	5	...	5	...	...	4,333	36	43	2	81	17	12	2	31	112
	Hazaribagh: Giridih	8	5	3	8	13	872,647	4,616	1,707	...	6,323	1,940	708	34	2,682	9,005
	Hazaribagh: Jharia	7	3	4	1	1	63,579	768	828	40	1,636	288	83	4	375	2,011
	Manbhum: Jharia	257	153	104	174	370	9,077,221	27,840	20,821	414	49,075	17,394	8,523	1,354	27,271	76,346
	Manbhum: Raniganj	71	7	64	43	65	507,077	2,265	1,203	3	3,471	987	510	38	1,535	5,006
	Palamau, Daltonganj	1	1	...	...	...	35,735	283	181	83	547	284	42	32	308	855
	Sambalpur, Hingir-Rampur	1	1	...	1	2	58,825	306	125	...	431	184	29	4	217	648
	Bonthal Parganas: Jainty	2	1	1	2	4	39,830	109	95	...	204	466	401	35	902	1,106
	Bonthal Parganas: Raniganj	2	...	2	2	2	2,059	14	9	...	23	6	2	...	8	31
	Total	354	171	183	231	457	10,711,356	36,237	25,012	542	61,791	21,516	10,310	1,503	33,329	95,120
Burma	Bhamo	1	...	1	...	...	25	8	...	...	8	8	...	...	8	16
Central Provinces	Chanda, Ballarpur	3	2	1	2	3	94,880	514	33	4	551	203	72	7	282	833
	Chhindwara, Pench Valley	8	7	1	8	19	103,152	539	250	29	818	178	90	32	300	1,118
	Narsinghpur, Mohpani	1	1	...	...	...	55,086	534	270	...	804	363	53	...	416	1,220
	Yeotmal	1	...	1	...	...	...	5	...	...	5	8	...	...	8	13
	Total	13	10	3	10	22	253,118	1,592	553	33	2,178	752	215	39	1,006	3,184

North-West Frontier Province.	Hazara	1	...	1	...	...	60	9	...	...	9	...	...	...	...	9
Panjab	Jhelum	5	...	5	4	4	51,613	657	...	13	670	339	...	13	352	1,022
	Mianwali	1	...	1	...	...	2,029	53	...	3	56	10	1	2	13	69
	Shahpur	2	...	2	...	...	4,269	117	...	...	117	65	...	...	65	182
	TOTAL .	8	...	8	4	4	57,911	827	...	16	843	414	1	15	430	1,273
	GRAND TOTAL (COAL) FOR 1915.	583	334	249	429	884	16,352,480	59,111	35,596	806	95,513	32,195	15,814	2,015	50,024	145,537
	" " OF PRECEDING YEAR.	610	326	284	423	845	15,727,631	55,302	32,292	605	88,199	31,770	15,883	1,999	49,652	137,851
	DIFFERENCE .	−27	+8	−35	+6	+39	+624,849	+3,809	+3,304	+201	+7,314	+425	−69	+16	+372	+7,686
							B.—MICA.									
							Cwts.									
Bihar and Orissa . .	Gaya	30	...	30	7	7	4,810	480	268	71	819	135	188	144	467	1,286
	Hazaribagh	248	...	248	27	28	13,986	1,981	1,029	286	3,296	1,219	1,115	474	2,808	6,104
	Monghyr	10	...	10	...	...	503	93	38	3	134	32	27	12	71	205
	TOTAL .	288	...	288	34	35	19,299	2,554	1,335	360	4,249	1,386	1,330	630	3,346	7,595
Madras . . .	Nellore	68	13	55	...	...	3,870	1,178	821	114	2,113	276	247	275	798	2,911
	TOTAL .	68	13	55	...	...	3,870	1,178	821	114	2,113	276	247	275	798	2,911

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1915—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							B.—MICA—*contd.* Cwts.									
Rajputana	Ajmer	5	...	5	...	...	703	79	15	...	94	73	24	...	97	191
	Merwara	4	...	4	...	...	191	44	8	...	52	12	12	...	24	76
	Nasirabad	1	...	1	...	...	...	10	...	...	10	4	4	...	8	18
	Total	10	...	10	...	...	894	133	23	...	156	89	40	...	129	285
	GRAND TOTAL (MICA) FOR 1915.	366	13	353	34	35	24,063	3,865	2,179	474	6,518	1,751	1,617	905	4,273	10,791
	,, ,, OF PRECEDING YEAR.	582	15	567	93	96	38,189	6,376	3,847	693	10,916	2,405	2,313	1,352	6,069	16,985
	DIFFERENCE	−216	−2	−214	−59	−61	−14,126	−2,511	−1,668	−219	−4,398	−654	−695	−447	−1,796	−6,194
							C.—MANGANESE. Tons.									
Bombay	Panch Mahals	2	2	...	...	...	26,915	490	243	77	810	123	30	7	160	970
Central Provinces	Balaghat	15	...	15	13	13	146,956	1,389	1,094	80	2,563	467	354	39	860	3,423
	Bhandara	8	...	8	5	6	68,822	391	391	16	798	310	207	56	573	1,371
	Chhindwara	2	1	1	2	2	46,941	406	431	26	863	82	16	3	101	964
	Jabalpur	1	...	1	...	...	...	5	12	...	17	2	5	2	9	26
	Nagpur	21	1	20	9	9	88,250	1,226	1,067	16	2,309	401	256	55	712	3,021
	Total	47	2	45	29	30	350,969	3,417	2,995	138	6,550	1,362	838	155	2,255	8,805

Madras	Vizagapatam	1	...	1	...	...	388	7	8	...	15	...	...	...	...	15
	GRAND TOTAL (MANGANESE) FOR 1915.	50	4	46	29	30	378,172	3,914	3,246	215	7,375	1,385	868	162	2,415	9,790
	" " OF PRECEDING YEAR.	56	5	51	31	33	555,672	5,557	4,574	240	10,371	1,603	932	155	2,690	13,061
	DIFFERENCE	—6	—1	—5	—2	—3	—177,500	—1,643	—1,328	—25	—2,996	—218	—64	+7	—275	—3,271
							D.—LIMESTONE.									
							Tons.									
Central Provinces	Jabalpur, Katni	25	4	21	...	...	63,079	517	911	25	1,453	129	228	37	394	1,847
Panjab	Hoshiarpur	1	...	1	...	...	1,100	20	...	...	20	40	...	...	40	60
	GRAND TOTAL (LIMESTONE) FOR 1915.	26	4	22	...	..	64,179	537	911	25	1,473	169	228	37	434	1,907
	" " OF PRECEDING YEAR.	26	3	23	26	27	146,505	1,240	1,816	111	3,167	283	354	80	717	3,884
	DIFFERENCE	...	+1	—1	—26	—27	—82,326	—703	—905	—86	—1,694	—114	—126	—43	—283	—1,977
							E.—SALT.									
							Tons.									
Panjab	Jhelum	2	...	2	2	4	138,280	403	332	35	770	38	...	...	38	808
	Mianwali	1	...	1	1	2	1,439	60	...	17	77	...	...	...	...	77
	Shahpur	1	...	1	1	1	5,051	15	13	5	33	...	...	...	...	33
	GRAND TOTAL (SALT) FOR 1915.	4	...	4	4	7	144,770	478	345	57	880	38	...	...	38	918
	" " OF PRECEDING YEAR.	4	...	4	1	2	135,518	488	359	76	923	39	...	...	39	962
	DIFFERENCE	...	...	...	+3	+5	+9,252	—10	—14	—19	—43	—1	...	...	—1	—44

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1915—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 13).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							F.—GEMS.									
							(a)—Rubies.									
							Carats.									
Burma	Mogok	...	...	...	...	...	167,904									
							(b) Sapphires.									
	Mogok	3	3	...	...	...	39,718	551	...	...	551	421	...	...	421	972
							(c) Spinels.									
	Mogok	...	...	...	...	...	43,827									
	TOTAL	...	...	...	...	...	251,449	551	...	...	551	421	...	...	421	972
	GRAND TOTAL (GEMS) FOR 1915.	3	3	...	...	...	251,449	551	...	...	551	421	...	...	421	972
	" " OF PRECEDING YEAR.	8	8	...	...	...	304,042	857	...	...	857	872	...	...	872	1,729
	DIFFERENCE	—5	—5	...	...	...	—52,593	—306	...	...	—306	—451	...	...	—451	—757
							G.—SLATE.									
							Tons.									
Bihar and Orissa	Monghyr	4	...	4	3	3	2,700	113	54	54	221	61	..	...	61	282
Panjab	Gurdaspur	1	...	1	...	...	13	...	...	...	...	1	...	...	1	1
	Gurgaon	5	...	5	...	...	1,995	148	4	42	194	17	...	2	19	213
	Kangra	5	...	5	...	...	5,902	130	36	14	180	147	12	16	175	355

	TOTAL .	11	...	11	...	...	7,910	278	40	56	374	165	12	18	195	569
	GRAND TOTAL (SLATE) FOR 1915.	15	...	15	3	3	10,610	391	94	110	595	226	12	18	256	851
	" " OF PRECEDING YEAR.	15	...	15	3	3	12,430	425	56	118	599	261	41	40	342	941
	DIFFERENCE . . .	...	...	..	...	...	—1,820	—34	+38	—8	—4	—35	—29	—22	—86	—90
							H.—GOLD.									
							Ozs.									
Bihar and Orissa . .	Singhbhum . . .	1	...	1	...	...	450	78	32	...	110	18	8	2	28	138
Madras	Anantapur	4	4	...	3	5	23,870	897	...	...	897	815	173	140	1,128	2,025
	GRAND TOTAL (GOLD) FOR 1915.	5	4	1	3	5	24,320	975	32	...	1,007	833	181	142	1,156	2,163
	" " OF PRECEDING YEAR.	3	3	...	...	..	19,873	606	...	...	606	1,013	250	169	1,432	2,038
	DIFFERENCE . . .	+2	+1	+1	+3	+5	+4,447	+369	+32	...	+401	—180	—69	—27	—276	+125
							I.—IRON.									
							Tons.									
Bihar and Orissa . .	Puri	1	1	...	...	...	53	...	...	...	...	44	...	26	70	70
	Singhbhum	1	1	...	...	...	123,764	434	257	37	728	94	18	1	113	841
	TOTAL .	2	2	...	...	...	123,817	434	257	37	728	138	18	27	183	911
Central Provinces . .	Chanda	1	...	1	...	...	2,800	11	9	...	20	22	17	1	40	60
	GRAND TOTAL (IRON) FOR 1915.	3	2	1	...	...	126,617	445	266	37	748	160	35	28	223	971
	" " OF PRECEDING YEAR.	4	1	3	...	...	167,600	652	346	58	1,056	97	25	10	132	1,188
	DIFFERENCE . .	—1	+1	—2	...	...	—40,983	—207	—80	—21	—308	+63	+10	+18	+91	—217

APPENDIX I—*contd.*

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1915—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							J.—WOLFRAM. Cwts.									
Burma	Tavoy	38	1	37	...	...	39,432	1,740	1	...	1,741	1,336	110	...	1,446	3,187
	GRAND TOTAL (WOLFRAM) FOR 1915.	38	1	37	...	...	39,432	1,740	1	...	1,741	1,336	110	...	1,446	3,187
	„ „ OF PRECEDING YEAR.	43	1	42	18	22	31,526	1,825	32	...	1,857	1,069	90	16	1,175	3,032
	DIFFERENCE	—5	...	—5	—18	—22	+7,906	—85	—31	...	—116	+267	+20	—16	+271	+155
							K.—MAGNESITE. Tons.									
Madras	Salem	2	...	2	...	...	7,450	198	169	133	500	74	...	28	102	602
	TOTAL OF PRECEDING YEAR	2	...	2	...	...	399	12	...	21	33	37	...	10	47	80
	DIFFERENCE	...	...	...	...	...	+7,051	+186	+169	+112	+467	+37	...	+18	+55	+522

L.—CHROMITE.

							Cwts.									
Baluchistan	Quetta-Pishin	1	1	...	...	...	980	4	...	...	4	4	...	...	4	8
	Zhob	5	...	5	...	...	28,320	50	...	...	50	27	...	...	27	77
	GRAND TOTAL (CHROMITE) FOR 1915.	6	1	5	...	...	29,300	54	...	...	54	31	...	...	31	85
	TOTAL OF PRECEDING YEAR	10	1	9	...	...	60,120	39	...	...	39	31	...	...	31	70
	DIFFERENCE	—4	...	—4	...	...	—30,820	+15	...	...	+15	...	...	...	...	+15

M.—COPPER ORE.

							Tons.									
Bihar and Orissa	Singhbhum	1	1	...	1	5	8,010	445	...	...	445	843	136	...	979	1,424
Burma	Kathe	1	...	1	...	...	...	18	...	...	18	7	...	...	7	25
	Kyaukse	1	...	1	...	...	...	43	...	...	43	38	...	...	38	81
	Lower Chindwin	2	...	2	...	...	...	208	...	...	208	87	21	...	108	316
	TOTAL	4	...	4	...	...	...	269	...	...	269	132	21	...	153	422
	GRAND TOTAL (COPPER) FOR 1915	5	1	4	1		8,010	714	...	...	714	975	157	...	1,132	1,846
	TOTAL OF PRECEDING YEAR	1	1	...	1	5	4,400	402	...	...	402	841	564	60	1,465	1,867
	DIFFERENCE	+4	...	+4	...	...	+3,610	+312	...	...	+312	+134	—407	—60	—333	—21

N.—BAUXITE.

							Cwts.									
Central Provinces	Jabalpur	1	...	1	...	...	17,520	20	18	...	38	3	...	...	3	41
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	9,280	16	12	...	28	5	...	...	5	33
	DIFFERENCE	...	...	...	...	...	+8,240	+4	+6	...	+10	—2	...	...	—2	+8

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1915—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 13).	Above ground: Total above ground.	Grand total below and above ground.
							O.—CLAY. Tons.									
Bihar and Orissa	Manbhum	2	...	2	...	...	100	13	30	...	43	5	12	...	17	65
	Palamau	1	...	1	...	...	1,509	6	4	2	12	9	7	1	17	29
	TOTAL	3	...	3	...	...	1,609	24	34	2	60	14	19	1	34	94
Central Provinces	Jabalpur	3	1	2	...	...	30,819	67	121	6	194	47	5	4	56	250
	GRAND TOTAL (CLAY) FOR 1915.	6	1	5	...	...	32,428	91	155	8	254	61	24	5	90	344
	TOTAL OF PRECEDING YEAR	4	1	3	2	2	27,603	65	124	7	196	48	13	3	64	260
	DIFFERENCE	+2	...	+2	—2	—2	+4,825	+26	+31	+1	+58	+13	+11	+2	+26	+84
							P.—GALENA. Cwts.									
Central Provinces	Drug	1	...	1	...	...	140	5	20	...	25	2	10	...	12	37
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	65	12	45	...	57	10	25	...	35	92
	DIFFERENCE	...	...	...	...	...	+75	—7	—25	...	—32	—8	—15	...	—23	—55

Q.—TIN.

							Cwts.	lbs.									
Bihar and Orissa	Hazaribagh	1	...	1	...	...	0	82	3	1	...	4	2	1	...	3	7
Burma	Mergui	1	...	1	...	...	26	0	27	...	...	27	...	...	...	...	27
	Tavoy	3	...	3	...	...	253	0	...	...	...	...	...	...	...	...	...*
	TOTAL	4	...	4	...	...	279	0	27	...	...	27	...	...	...	...	27
	GRAND TOTAL (TIN) FOR 1915.	5	...	5	...	...	279	82	30	1	...	31	2	1	...	3	34
	" " OF PRECEDING YEAR.	6	2	4	1	1	909	0	5	...	...	5	130	...	...	130	135
	DIFFERENCE	—1	—2	+1	—1	—1	—629	30	+25	+1	...	+26	—128	+1	...	—127	—101

R.—STEATITE.

							Cwts.										
Madras	Kurnool	1	...	1	...	...	...		...	...	...	...	6	6	...	12	12
	GRAND TOTAL OF PRECEDING YEAR.	4	...	4	1	1	11,087		67	67	...	134	26	29	9	64	198
	DIFFERENCE	—3	...	—3	—1	—1	—11,087		—67	—67	...	—134	—20	—23	—9	—52	—136

S.—SILVER.

							Troy ounces.										
Madras	Anantapur	...	...	...	...	...	512		...	...	...	...	...	...	...	...	...†
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...		...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	...	...	+512		...	...	...	...	...	...	...	...	...

* Labour figures included with those for wolfram.
† Won from Jibutil gold mine in Madras.

Table No. 1—*concld.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1915—*concld.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.	
							T.—SAMARSKITE. lbs.										
Madras	Nellore	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	*
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	Cwts. lbs. 43 0	...	...	...	...	...	...	...	...	...	
	DIFFERENCE	...	...	...	...	...	Cwts. lbs. —42 110	...	...	...	...	...	...	...	...	...	
							U.—FULLER'S EARTH. Tons.										
Central Provinces	Jabalpur	1	...	1	...	...	139	...	...	...	...	...	...	...	...	...	†
	TOTAL OF PRECEDING YEAR	1	...	1	1	1	109	...	...	...	...	...	...	...	...	...	
	DIFFERENCE	...	...	...	—1	—1	+30	...	...	...	...	...	...	...	...	...	

GRAND TOTAL (ALL MINERALS) 1915.	1,121	368	753	503	969	Tons. 17,124,855 Cwts. 110,734 lbs. 84 Carats. 251,449 Troy ounces. 24,832	73,119	43,033	1,865	118,017	39,668	19,063	3,340	62,071	180,088
GRAND TOTAL OF PRECEDING YEAR.	1,387	369	1,018	603	1,040	Tons. 16,903,215 Cwts. 151,897 lbs. 16 Carats. 304,042 Troy ounces. 19,873	74,500	43,638	1,933	120,071	40,674	20,541	3,925	65,140	185,211
DIFFERENCE . . .	—266	—1	—265	—100	—71	Tons. +221,640 Cwts. —41,163 lbs. +68 Carats. —52,593 Troy ounces. +4,959	—1,381	—605	—68	—2,054	—1,006	—1,478	—585	—3,069	—5,123

* Won from Sankara mica mine in Madras.
† Labour figures included with those for Jabalpur limestone.

APPENDIX I—*contd.*

Table No. 2.

Number of mines opened and closed during the year ending 31st December 1915.

Province.	District.		Number of mines opened.	Number of mines closed.
	A.—COAL.			
Baluchistan	Quetta-Pishin		2	1
	Sibi-Khost		2	1
Total			4	2
Bengal	Bankura		...	1
	Burdwan-Raniganj		12	17
Total			12	18
Bihar and Orissa	Hazaribagh	Bokaro-Ramgarh	5	2
		Giridih	...	1
		Jharia	1	2
	Manbhum	Jharia	11	22
		Raniganj	1	10
	Sonthal Parganas, Raniganj		...	1
Total			18	38
Burma	Bhamo		1	1
Central Provinces	Chanda		1	...
	Chhindwara		1	1
	Yeotmal		1	...
Total			3	1
Panjab	Mianwali		1	1
Total (Coal)			39	61
	B.—MICA.			
Bihar and Orissa	Gaya		6	7
	Hazaribagh		88	49
	Monghyr		1	2
Total			95	58
Madras	Nellore		19	13

APPENDIX I—*contd.*

Table No. 2—*concld.*

Number of mines opened and closed during the year ending 31st December 1915—*concld.*

Province.	District.	Number of mines opened.	Number of mines closed.
Rajputana	Ajmer	...	2
	Nasirabad	1	...
Total		1	2
Total (Mica)		115	73
	C.—MANGANESE.		
Central Provinces	Balaghat	2	...
	Bhandara	1	...
	Nagpur	10	...
Total (Manganese)		13	...
	D.—LIMESTONE.		
Central Provinces	Jabalpur	3	5
	E.—SLATE.		
Panjab	Gurgaon	1	1
	F.—GOLD.		
Madras	Anantapur	...	1
	G.—IRON.		
Central Provinces	Chanda	...	1
	H.—WOLFRAM.		
Burma	Tavoy	11	1
	I.—COPPER.		
Burma	Katha	1	...
	Kyaukse	1	...
	Lower Chindwin	1	..
Total (Copper)		3	...
	J.—BAUXITE.		
Central Provinces	Jabalpur	...	1
	K.—CLAY.		
Bihar and Orissa	Manbhum	2	...
	L.—GALENA.		
Central Provinces	Drûg	1	1
	M.—TIN.		
Bihar and Orissa	Hazaribagh	...	1
GRAND TOTAL (all mines)		188	146

APPENDIX I– *concld.*

Table No. 3.

The following table shows the fluctuations in the output of the principal minerals raised from mines classed under the Indian Mines Act, 1901. The other minerals raised are gems, slate, iron ore, magnesite, chromite, tin, steatite, clay, galena, samarskite, bauxite, fuller's earth and silver.

Year.	Coal.	Manganese.	Mica.	Limestone.	Salt.	Wolfram.	Gold.	Copper.
	Tons.	Tons.	Cwts.	Tons.	Tons.	Cwts.	Troy ozs.	Tons.
1906 . .	9,112,663	436,442	50,438	48,836	118,023	...	...	...
1907 . .	10,526,468	642,082	44,919	73,222	101,703	...	4,017	...
1908 . .	12,149,020	494,942	46,208	101,569	93,779	...	7,242	10
1909 . .	11,294,227	357,205	32,011	56,502	126,987	144	5,615	7
1910 . .	11,387,716	468,669	21,375	81,258	119,867	18	3,269	864
1911 .	12,048,726	441,426	31,686	92,692	124,603	8,394	8,277	2,079
1912 . .	14,044,368	423,464	41,660	91,784	131,233	25,401	7,269	8,984
1913 . .	15,486,318	637,391	43,650	71,259	138,540	27,520	11,019	3,639
1914 . .	15,727,631	555,672	38,189	146,505	135,518	31,526	19,873	4,400
1915 . .	16,352,480	378,172	24,063	64,179	144,770	39,432	24,320	8,010

Table No. 4.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rates during the years 1906 to 1915 in respect of coal mines under the Indian Mines Act, 1901 :—

Year.	Amount of coal raised.	Average number of persons working daily below and above ground.	Number of deaths below and above ground.	Death-rates.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above ground.
1906 . . .	9,112,663	90,159	80	8·78	·89
1907 . . .	10,526,468	102,689	89	8·45	·86
1908 . . .	12,149,020	120,107	164	13·49	1·36
1909 . . .	11,294,227	109,291	119	10·53	1·08
1910 . . .	11,387,716	105,285	160	14·05	1·52
1911 . . .	12,048,726	106,598	148	12·28	1·38
1912 . . .	14,044,368	121,392	157	11·17	1·29
1913 . . .	15,486,318	133,042	185	11·95	1·39
1914 . . .	15,727,631	137,851	145	9·22	1·05
1915 . . .	16,352,480	145,537	166	10·15	1·14

APPENDIX II.

ACCIDENTS IN MINES.

Table No. 1.

List of Fatal Accidents in mines regulated by the Indian Mines Act, 1901, during the year 1915.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			EXPLOSIONS OF FIRE DAMP—(*1 death*).			
1	8th November, 7-15 A.M.	Sodepur Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Roghu Manjhi, (*m.*), 24, *Miner.*	Coal	Deceased entered a gallery in the early morning with a naked light and ignited an accumulation of gas. An explosion followed and he was burned so severely that he died ten hours later. The night sirdar had failed to detect the gas and it is surmised that he did not inspect thelgallery. The night sirdar and two other men were prosecuted for a breach of special rules. Inspection and inquiry made. *See Report, page 6.*
			FALLS OF ROOF AND SIDES—(*93 deaths*).			
			(*a*) Falls of roof—(*51 deaths*).			
2	11th January, 9 P.M.	Mohpani Mine, Mohpani P. O., Central Provinces.	Great Indian Peninsula Railway.	Harku Katia, (*f.*), 35, *Coal carrier.*	Coal	A fall of roof stone occurred in the working place where deceased was carrying coal. She sustained an injury to her thigh and died nine days afterwards.
3	13th January, 10 A.M.	West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Pancham Chamar, (*m.*), 26, *Rail mistri.*	Coal	Whilst a coal cutter was cutting roof coal to make height on a pony haulage road, a mass of about 2 tons of coal fell from concealed 'slips.' Deceased and another man were passing at the time. The former was killed and the latter sustained a fracture of the thigh. Inquiry made.
4	18th January, 3 P.M.	No. 4 Khost Mine, Khost P. O., Baluchistan.	North-Western Railway	Ali Mahomed, (*m.*), 25, *Carpenter.*	Coal	Deceased was fixing a setting near the face of a gallery when a piece of shale, measuring 30″×8″×11″ thick, fell upon his back from the seam overhead, a height of 7′ 6″. He received injuries to his spine, from the effects of which he died nearly three months later. Inspection and inquiry made.
5	20th January, 1 A.M.	West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Dimbeswar Kalita, (*m.*), 26, *Coal shoveller.*	Coal	Whilst shovelling coal in a 'chamber,' measuring 18′×27′×12′ high, deceased was killed by the fall of about 3 tons of coal from the roof. Inquiry made.
6	29th January, 11-30 P.M.	Sanctoria Mine, Dishargarh P. O., Bengal.	Bengal Coal Co., Ld.	Sriminato Bauri, (*m.*), 38, *Miner.*	Coal	Deceased, during the legitimate absence of the sirdar, commenced to rob the top of a main road pillar. Whilst so engaged a mass of roof stone, measuring 8′×3′×2′ 3″, fell upon him and caused injuries from which he died within half an hour. Inquiry made.
7	30th January, 3 P.M.	Sinidih Mine, Katrasgarh P. O., Bihar and Orissa.	New Sinidih Coal Co., Ld.	Noyan Bauri, (*m.*), 40, *Coal cutter.*	Coal	Whilst cutting stone from the floor on a main haulage road deceased was killed by a fall of roof stone, measuring 27′×18′×3″ to 10″ thick. Inspection and inquiry made.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) Falls of roof—*contd.*			
8	5th February, 4 A.M.	Sijua Mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ld.	Behari Mahato, (*m.*), 24, *Miner.*	Coal	Deceased passed through a fence in a pillar cutting district and whilst cutting coal from an abandoned 'stook' was killed by the fall of roof stone 6″ thick and 30′×25′ in area. Inspection and inquiry made.
9	5th February, 8-30 A.M.	Nuni Mine, Asansol P. O., Bengal.	Baraboni Coal Concern, Ld.	Singrai Manjhi, (*m.*), 22, *Miner.*	Coal	Deceased was working in a gallery of a pillar cutting district. Whilst so engaged, a mass of stone fell from the roof in front of him owing to a prop having been accidently knocked out by falling coal. A corner of the stone fell upon him and injured him so severely that he died shortly afterwards. Inspection and inquiry made.
10	9th February, 7 P.M.	Dhobidih Mine, Giridih P. O., Bihar and Orissa.	Bengal Giridih Coal Co., Ld.	Rupu Meab, (*m.*), 14, *Miner.*	Coal	Deceased and a companion were sitting in their working gallery sharpening their tools preparatory to commencing work, when a mass of roof stone, measuring 5′ 6″×3′ 6″×1′ 3″, tapering to feather edges, fell from a height of 3′ 3″ upon them. Deceased was killed instantly and his companion was slightly injured. Inspection and inqury made.
11	20th February, 3-45 A.M.	Akhalpur Mine, Nandi P. O., Bengal.	Hariladih Coal Co., Ld.	Chaltar Manjhi, (*m.*), 30, *Miner.*	Coal	Deceased was sleeping at the point of junction of four galleries when a mass of stone and coal, measuring 29′×20′×4′ 6″, fell upon him from a height of 10 feet. He was killed outright. Inspection and inqury made. *See Report, page 8.*
12	26th February, 12-30 P.M.	Kustore Mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Sedhu Manjhi, (*m.*), 36, *Miner.*	Coal	Deceased, in the legitimate absence of the sirdar, left his working place to cut coal in an adjacent gallery. Whilst so engaged, a mass of roof coal, measuring 25′×8′×1′ 4″, fell upon him from a height of 9′ 6″. He was killed outright. Inspection and inquiry made.
13	27th February, 7-30 P.M.	Kessabganj Mine, Kalipahari P. O., Bengal.	Gunpat Ram Marwari	Chandmani Manjhian, (*f.*), 18, Mani Manjhian, (*f.*), 14, *Kamins.*	Coal	The two deceased were loading coal in a gallery. Whilst so engaged, a mass of roof coal and shale, measuring 12′×9′×6″, fell upon them. They were killed outright. The roof at this place had been cut improperly and without orders by the miners by whom these women were employed, and who absconded after the accident. Inspection and inquiry made.
14	28th February, 9 P.M.	Tirap Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Wang Kwa Fo, (*m.*), 25, *Coal filler.*	Coal	Whilst deceased was loading coal into a basket in a 'chamber' measuring 10′×10′×8′ high, about half a ton of coal fell from the roof upon him. He sustained a fracture of the thigh and died from internal bleeding in hospital a few hours later. Inquiry made.
15	6th March, Midnight.	Baraboni Mine, Asansol P. O., Bengal.	Baraboni Coal Concern, Ld.	Dhasu Roy, (*m.*), 30, *Miner.*	Coal	Deceased went behind a fence into an unused gallery to rob a pillar. Whilst so engaged, a mass of roof and side coal, about 15 tons in weight, fell upon him. He died two hours later from injuries received. Inspection and inquiry made.

16	19th March, 11 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Mongru Oraon, (*m.*), 22, *Coal cutter*; Somaru Gore, (*m.*), 40, *'Opening' man.*	Coal	Whilst a gang of coal cutters were at work in a new 'opening', measuring 20′×12′×3′ 6″ high, a mass of about 15 tons of coal fell from concealed 'slips' in the roof. Mongru was killed on the spot and Somaru succumbed to his injuries twelve days later. Inquiry made.
17	22nd March, 9 A.M.	Barkui Mine, Pench P. O., Central Provinces.	Pench Valley Coal Co., Ld.	Prayag Lodh, (*m.*), 28, *Miner.*	Coal	Deceased entered a fenced place near the goaf edge and commenced to extract coal from a thin seam lying above the working seam. A fall of stone occurred striking him on the head and killing him. Another workman, who was with him, was prosecuted under special rule 6 and fined Rs. 20 or two weeks' imprisonment.
18	24th March, 8 A.M.	North Kustore Mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Santi Korin, (*f.*), 18, *Coal carrier.*	Coal	Whilst five coal cutters were extracting a pillar of coal in a pillar cutting district, a mass of roof coal, weighing about 35 tons and measuring 28′×14′×1′ 6″ to 4′ 0″ thick, fell from the roof swaying out seven props beneath it. Deceased was killed on the spot and a sirdar was severely injured by the falling coal. Inspection and inquiry made. *See Report, page 8.*
19	29th March, 9 A.M.	Basundni Mine, Jawaja P. O., Rajputana.	Rajputana Mica and Minerals Co, Ld.	Natha, (*m.*), 29, *Miner.*	Mica	Deceased was working against orders in an abandoned working extracting mica from a supporting pillar, when about 2 tons of roof stone fell upon him causing instant death.
20	5th April, 3-30 P.M.	Bhowra Mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Dukhu Rajwar, (*m.*), 40, *Coal cutter.*	Coal	Whilst deceased was standing on a barrel and cutting down roof coal he was struck by a mass of coal, weighing about 25 cwts., which fell unexpectedly from between two smooth 'joints'. He succumbed two days later presumably from internal injuries. Inspection and inquiry made.
21	12th April, 2 P.M.	Mucheridih Mine, Mohoda P. O., Bihar and Orissa.	Mucheridih Coal Co., Ld.	Robi Mahato, (*m.*), 14, *Dust loading coolie.*	Coal	Deceased passed through a fence and whilst loading dust coal lying on the floor in old workings he was struck down by a fall of roof stone, 1′ 3″ thick, over an area 6′×10′. He was killed on the spot. Inspection and inquiry made.
22	18th April, 9 A.M.	Nodiha Mine, Dishargarh P. O., Bengal.	Nodiha Coal Co., Ld.	Somi Manjhian, (*f.*), 17, *Coal carrier.*	Coal	A piece of roof stone, measuring 5′ 8″ × 3′ ×5½″ maximum thickness, fell from a height of 7 feet in a working gallery and killed deceased outright as she was walking beneath it. The gallery had been examined two hours before by a sirdar who had declared it safe. Inspection and inquiry made.
23	18th April, 11 A.M.	Dandot Mine, Dandot P. O., Panjab.	Thakur Dass Ramji Dass	Akbar, (*m.*), 16, *Stone coolie.*	Coal	Whilst employed with two other miners in stowing away rubbish in a gallery, a piece of shale, measuring 3′×2′×1′ 6″, fell from between two 'chocks' burying deceased and killing him.
24	19th April, Noon.	Rakha Hills Mine, Rakha Mines P. O., Bihar and Orissa.	Cape Copper Co., Ld.	Basa, (*m.*), 28, *Coolie.*	Copper	Deceased was found immediately beneath the junction of the vertical portion of a shaft with the inclined portion. An irregularly shaped piece of rock, measuring about 2′ 6″×2′×4″ thick, had fallen on him from a height of 15 feet, from the angle between two portions of the shaft, fracturing his skull and killing him.
25	28th May, 4 A.M.	Kendwadih Mine, Jamadoba P. O., Bihar and Orissa.	Hariladih Coal Co., Ld.	Jhunu Bilaspuri, (*m.*), 42, *Coal cutter.*	Coal	Whilst the sirdar and some stone cutters were preparing deceased's working place in a pillar cutting district, he and his two wives went through a fence into an unused gallery. They were lying asleep when a stone, about 1′ 3″ square and 3″ thick, fell from the roof 7 feet above. Deceased sustained a rupture of the liver and died within an hour. Inspection and inquiry made.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—(*contd.*)			
			(*a*) **Falls of roof**—*contd.*			
26	12th June, 9 A.M.	Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Sudamdih Coal Co., Ld.	Pitam Singh, (*m.*), 37, *Coal cutter.*	Coal	Deceased was at work cutting floor coal on an upper bench 9 feet high in a pillaring area in a seam 20 feet thick. The roof was carried on props set on the floor coal. Another miner was cutting coal on a lower bench close by, and this man undermined a prop which fell out, causing a fall of roof coal and stone 2′ 3″ thick over an area 12′ × 5′ 6″. Deceased received injuries to which he succumbed an hour and a half later. Inspection and inquiry made.
27	7th July, 4-30 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Kubir Mogor, (*m.*), 28, *Coal loader.*	Coal	Whilst a gang of eight men, in charge of a sirdar, were at work in a 'chamber', measuring 60′ × 30′ × 30′ high, the roof began to 'weight.' Whilst the men were running out a mass of 30 tons of coal fell from the roof. Deceased was struck down and killed on the spot. His body was recovered about an hour later. Inquiry made.
28	23rd July, 4 A.M.	Sijua Mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ld.	Maiku Manjhian, (*f.*), 30, *Coal carrier.*	Coal	Deceased worked as a coal carrier for her husband, who was employed in cutting roof coal, three feet thick, in a gallery seven feet high. While she was filling a basket a mass of coal fell prematurely from the roof at a point where her husband had first been cutting. She was knocked down and sustained injuries to which she succumbed shortly afterwards. The fallen coal weighed about two tons and the cavity from which it fell measured 5′ × 3′ 6″ × 3′. Inspection and inquiry made.
29	23rd July, Midnight.	Charanpur Mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ld.	Ratai Passi, (*m.*), 38, *Miner.*	Coal	Deceased and another miner, in collusion with the day and night sirdar of the district, entered a fenced area, drilled, charged and blasted two shots in a pillar when some roof coal fell from a height of nine feet and killed deceased outright. The other miner was prosecuted for a breach of special rules but absconded. Inspection and inquiry made.
30	7th August, 3-30 A.M.	Lutchipur Mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Suku Manjhi, (*m.*), 28; Ramji Manjhi, (*m.*), 50, *Miners.*	Coal	The two deceased deliberately entered a fenced goaf to get some fallen coal when about five tons of roof fell upon them from a height of 10 feet and killed them outright. Inspection and inquiry made.
31	9th August, 10-30 A.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Ram Gholam Ahir, (*m.*), 32, *Coal shoveller.*	Coal	Deceased was loading coal on a road where a new 'chamber' was being commenced, when about a ton of coal fell from a 'slip' in the roof about 5 feet above. Four props had been set under the 'slip', but the coal fell between two of the props. Whilst rescue operations were in progress a further fall of coal took place. When extricated deceased was found to be dead. Inquiry made.

32	31st August, 10 A.M.	New East Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Paltu, (*m.*), 36, *Coal shoveller.*	Coal	Deceased was shovelling coal at a point where two cross roads 6′ wide × 5′ high joined and where a new 'chamber' was being commenced. Whilst so employed a slab of coal, weighing about 12 cwts., fell from the roof without warning and rolled upon him. He sustained injuries to which he succumbed whilst being carried from the mine. Inquiry made.
33	31st August, Midnight.	Tirap Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Pin-Tin-Yan, (*m.*), 30, *Coal filler.*	Coal	Whilst deceased and four other Chinese coolies were at work in a 'chamber', 50′ × 30′ × 15′ high, a lump of coal, weighing about 80 lbs., fell from the roof. Deceased's skull was fractured and death was instantaneous. Inquiry made.
34	5th September, 5 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Tikalal Nepali, (*m.*), 21, *Trammer*; Kabutri Ghatwal, (*f.*), 23, *Incline attendant.*	Coal	A party of six persons had completed their shift and had started to walk out of the mine. Whilst they were passing the bottom of a self-acting incline, which carries the coal down on to a haulage road, a mass of coal, weighing about 40 tons, fell from the roof. The two deceased were killed and two others injured. The road was 8 feet wide and 3 feet 6 inches high, and the cavity from which the coal fell was 16′ × 8′ × 2′ 6″. Inquiry made.
35	10th September, 9 P.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Ananda Gore, (*m.*), 36, *'Opening' man.*	Coal	Whilst deceased was breaking a lump of coal at the lower end of a 'chamber', 30 feet square and 19 feet high, about 4 tons of clay fell from the roof near the top of the 'chamber' and rolling down the steep slope of the seam, fell upon and buried him. He sustained injuries to which he succumbed the same day. Inquiry made.
36	17th September, 7-45 A.M.	Borrea Mine, Sitarampur P. O., Bengal.	New Beerbhum Coal Co., Ld.	Kangal Kora, (*m.*), 40, *Miner.*	Coal	Deceased, together with another miner and two women broke down a fence and entered a goaf, from which timber had been drawn the evening before, to gather some loose coal. They had loaded two baskets when roof coal fell over an area of 750 square feet from a height of 8′ 6″. The roof coal was 5 feet thick. Deceased was killed outright. The other miner was prosecuted for a breach of special rules but absconded. Inspection and inqury made.
37	20th September, 1 P.M.	Radhaballabpur Mine, Samdih P. O., Bengal.	J. Boisogomoff & Co.	Chand Behari Bauri, (*m.*), 30, *Miner.*	Coal	Deceased entered a fenced gallery without authority and commenced to cut coal when roof coal, measuring 32′ × 10′ ×3′ 6″ thick, fell from a height of 5′ 6″ and killed him outright. Inspection and inquiry made.
38	2nd October, 9-15 A.M.	Viceroy Mine, Charanpur P. O., Bengal.	Minto Coal Co., Ld.	Gonesh Manjhi, (*m.*), 25, *Miner*; Kuchari Manjhian, (*f.*), 25, *Miner's kamin.*	Coal	The two deceased, in the illegal absence of the sirdar, began to cut coal from a pillar under extraction. Whilst so doing, a piece of roof stone, measuring 19′ × 2′ 9″ × 1′ 8″ thick, fell from a height of 4 feet upon them and killed them instantly. Inspection and inquiry made.
39	7th October, 10 A.M.	Budruchak Mine, Sijua P. O., Bihar and Orissa.	Budruchak Coal Mining Co., Ld.	Sankumari Bilaspuri, (*f.*), 20, *Coal carrier.*	Coal	Deceased is said to have gone through a fence into an unused gallery for a necessary purpose. While she was there a wedge-shaped mass of stone, measuring 19′ long × 3′ 6″ wide and 2′ to 0″ thick, fell from between pronounced 'joints' in the roof knocking out three props. She was struck by the falling stone and succumbed to her injuries within a few hours. Inspection and inquiry made.
40	1st November, 11-15 A.M.	West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gopal, (*m.*), 30, *Coal loader.*	Coal	Whilst some coolies were at work in a 'chamber,' measuring 30′×24′×14′ high, a mass of coal, weighing about 10 tons, fell from the roof without warning. Deceased was killed and three other persons were injured. Inquiry made.
41	23rd November, 5-30 P.M.	Khost Mine, Khost P. O., Baluchistan.	North-Western Railway	Khan Daman, (*m.*), 25, *Carpenter's coolie.*	Coal	Deceased was assisting to set a prop between two broken ones when the roof broke off below the line of props and fell upon him. He was taken out with difficulty and was believed to have escaped serious injury. He died suddenly and unexpectedly four days later.

APPENDIX II—*contd.*

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—(*contd.*)			
			(*a*) **Falls of roof**—*concld.*			
42	30th November, 11 P.M.	Sanctoria Mine, Dishargarh P. O., Bengal.	Bengal Coal Co., Ld.	Kisto Bouri, (*m.*), 50, *Sirdar.*	Coal	Deceased, who was the sirdar of the district, entered an old fenced goaf which was 'weighting,' when a piece of roof coal and stone, measuring 15′×10′×1′ 6″ thick, fell from a height of 16 feet upon him and killed him outright. Inspection and inquiry made.
43	4th December, 0-30 A.M.	Bhuggutdih Mine, Jharia P. O., Bihar and Orissa.	Bengal Nagpur Coal Co., Ld.	Ganga Ghatwal, (*m.*), 35, Jilal Ghatwal, (*m.*), 38, Babu Morral, (*m.*), 30, *Coal cutters.*	Coal	The deceased left their working place and passing through a fence, entered a goaf and began to pick up fallen coal. They were killed on the spot by a fall of roof coal, 3 feet in thickness, from a height of 12 feet, over an area measuring 30′×20′. Inspection and inquiry made.
44	14th December, 11 A.M.	Baraboni Mine, Asansol P. O., Bengal.	Baraboni Coal Concern, Ld.	Ramjit Manjhi, (*m.*), 35, *Miner.*	Coal	Whilst deceased was cutting roof coal in a gallery, 30 feet wide, a piece of coal, measuring 7′×4′×2′ 6″ thick, fell from a height of 8 feet and killed him outright. The roof was much affected by 'slips.' Inspection and inquiry made.
45	18th December, 10-30 A.M.	Banstakola Mine, Jharia P. O., Bihar and Orissa.	New Beerbhum Coal Co., Ld.	Sumai Manjhi, (*m.*), 35, *Coal cutter.*	Coal	Deceased, whilst working in a gallery, 7′ 6″ in height, was killed by a mass of coal, measuring 7′×5′×1′ 6″ to 0″ thick, which fell from 'slips' in the roof. Inspection and inquiry made.
			(*b*) **Falls of side**—(*42 deaths*).			
46	16th January, 2 A.M.	Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Telu Meah, (*m.*), 45, *Coal cutter.*	Coal	Under the personal direction of an overman and a sirdar a mass of overhanging coal was dislodged from the side of a pillar in a pillar cutting district by two coal cutters, using a crowbar. The rest of the coal cutters and carriers had been previously sent out to a safe distance, about 50 feet away. A mass of about 5 cwts. of coal was brought down which in falling struck and knocked out a prop, 16 feet long, which in its turn struck and knocked out another prop, 18 feet long. The second prop struck deceased on the head and inflicted injuries, to which he succumbed three days later. The fact that deceased had approached was unknown to the officials present. Inspection and inquiry made.
47	2nd February, Noon.	Jamadoba Mine, Jamadoba P. O., Bihar and Orissa.	Indian Collieries Syndicate, Ld.	Sanku Manjhi, (*m.*), 35, *Coal cutter.*	Coal	Deceased worked in a pillar cutting area and was killed on the spot by a fall from the coal face of about 5 cwts. of coal. Inspection and inquiry made.
48	17th February, 4 P.M.	Abrakhi Mine, Rejauli P. O., Bihar and Orissa.	Raja J. P. N. Singh	Tilak Singh Ghatwar, (*m.*), 35, *Miner.*	Mica	Whilst deceased was digging in the corner of an open excavation some earth fell on his back. He died a few hours afterwards from the injuries received.

49	14th March, 4 A.M.	Bhowra Mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Mukteswar Mahato, (*m.*), 22, *Coal cutter.*	Coal	Deceased broke down a fence and entered old workings. Whilst he was illegally cutting coal from the corner of a pillar, he was killed on the spot by the fall of a mass of coal, measuring 5′×3′×1′ 9″ and weighing about a ton. Inspection and inquiry made.
50	22nd March, 11 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Lalmoni Alik, (*m.*), 25, *Earth cutter.*	Coal	Some coolies in charge of a colliery sirdar were engaged in levelling a site for a coolie barrack on the side of a hill. Without orders they undercut to a depth of 1′ 6″, a face, 14 feet high, composed of soil and boulders. Whilst deceased was using a pick in the undercut, a fall of soil and boulders took place and he was struck by a boulder and killed. Rescue operations were in progress when a further fall of about 4 tons of soil and boulders took place and caused serious injuries to two other persons. Inquiry made.
51	28th March, 5-40 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Amdu *alias* Tagnig Bhutia, (*m.*), 27, Temba Bhutia, (*m.*), 35, *'Opening' men.*	Coal	Whilst some miners were at work in a 'chamber,' 80′×30′×12′ high, the roof began to 'weight.' The sirdar in charge ordered all persons to leave the 'opening,' all obeyed him except the two deceased. They refused to come out and said that the place was safe. Shortly after a mass of about 4 tons of coal fell from the side. Amdu was killed on the spot and Temba received injuries to which he succumbed the same day. Inquiry made.
52	22nd April, 10 P.M.	Khas Jharia Mine, Jharia P. O., Bihar and Orissa.	Khas Jharia Colliery Co., Ld.	Bansi Bhuia, (*m.*), 28, Bhaglu Turi, (*m.*), 40, *Coal cutters.*	Coal	The two deceased worked in a pillar cutting district. During the absence of the sirdar they left their working place, broke down a fence and began to cut coal from the corner of a pillar, 14 feet high. They were killed on the spot by the fall of a mass of coal, measuring 9′×8′×3′ 6″, from a height of 5 feet. The fallen coal weighed about 5 tons. Inspection and inquiry made.
53	28th April, 1 P.M.	Kendwadih Mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Balkishan Dosadh, (*m.*), 35, *Coal cutter.*	Coal	Whilst work was going on in a pillar cutting district in a coal seam, 18 feet in thickness, the goaf began to 'weight.' In accordance with the manager's standing orders, the sirdar stopped the work and ordered all persons to go out to the loading station whilst he remained near the goaf, to watch developments. Deceased and another coal cutter were employed in splitting a pillar at a distance of about 100 feet from the edge of the goaf. Thinking themselves in a place of safety they did not obey the sirdar's orders at once but sat down to smoke near their working place. A slab of coal, measuring 3′×2′×2′, fell from the side of the pillar from a height of 7 feet and killed deceased on the spot. Inspection and inquiry made.
54	19th May, 2 A.M.	Haripur Mine, Chora P. O., Bengal.	Bholanath Chatterji	Kalip Bauri, (*m.*), 32, *Miner.*	Coal	Deceased, in the absence of and against the orders of the sirdar, went behind a fence to rob a pillar. Whilst so engaged about a ton of side coal fell upon him and inflicted injuries from which he died six hours later. Inspection and inquiry made.
55	26th May, 6 A.M.	Bansdeopur Mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co.	Dhuluwa Chamar, (*m.*), 14, *Coal carrier.*	Coal	Whilst the extraction of a pillar of coal, 16′ feet high, was going on, a mass of coal, weighing about 2 cwts., fell from the face at a height of 7 feet. Deceased was struck on the head and killed on the spot. Another man sustained a fracture of the leg. Inspection and inquiry made.
56	31st May, 12-30 P.M.	Hermyingyi Mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Maung Oh, (*m.*), 42, *Miner.*	Wolfram	Whilst engaged in opening up the mouth of an old tunnel, a fall of about 8 tons of soft earth and large stones took place from a height of 15 feet above where deceased was working, striking him and breaking his neck. The slope of the ground was about 80° with the horizontal, there was no higher ground above. He had been warned to put in timber which at the time of accident was lying ready jointed to be erected. The weather was dry at the time but had rained during the night. Three other men were working at the same time. An official of the Company had visited and warned the men three days previously.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—(*contd.*)			
			(*b*) **Falls of side**—*contd.*			
57	31st May, 3 P.M.	Aldih Mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Dharam Manjhi, (*m.*), 23, *Miner.*	Coal	Deceased went behind a fence to rob a pillar. Whilst so engaged, a mass of coal, weighing about a ton, fell upon his head and killed him instantly. Inspection and inquiry made.
58	5th June, 3-30 P.M.	Chinchuria Mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Moti Kamar, (*m.*), 25, *Miner.*	Coal	Deceased, in the absence of the sirdar, began to cut the side of a pillar. He had been previously warned not to do so. Whilst so engaged, a mass of coal of about 2 tons in weight, fell from a 'slip' upon him. He was killed outright. Inspection and inquiry made. *See Report, page 8.*
59	11th June, 10-45 A.M.	West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Dudhi Gurung Nepali, (*m.*), 32, *Contractor sirdar.*	Coal	Whilst a gang of Nepalese in charge of a Bengali sirdar was at work in a 'chamber,' the roof gave signs of 'weighting.' The Bengali sirdar in charge gave orders for every one to leave the 'chamber.' This order was obeyed by all except deceased who was a Nepalese contracting sirdar, who declared that nothing was wrong and that he understood the work thoroughly. About five minutes later half a ton of coal fell from the side and struck him. He sustained a severe fracture of the leg and died in hospital the same day. Inquiry made.
60	11th June, Between 3 & 4 P.M.	Karharia Mine, Jhumri-Tilaya P. O., Bihar and Orissa.	Johur Mull and Sundur Mull.	Bishun Teli, (*m.*), 35, *Labourer.*	Mica	While deceased was sitting at the mouth of an old gallery a portion of the side of the gallery fell upon him injuring his spinal cord. He died seven weeks later.
61	23rd June, 10 A.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gono Lodh, (*m.*), 35, *Coal loader.*	Coal	Deceased was one of a gang of timber men and coolies who were engaged in repairing a level road. Whilst he was loading fallen coal into a basket a fall of side took place, knocking out three timber settings. He was completely buried in small coal and died from suffocation. The body was recovered about an hour later. Inquiry made.
62	8th July, 6-30 A.M.	Dishargarh Mine, Dishargarh P. O., Bengal.	Equitable Coal Co., Ld.	Nanku Passi, (*m.*), 35, *Miner.*	Coal	Deceased deliberately broke down a fence, entered a place where overhanging side coal had been declared unsafe and commenced to cut coal. The overhanging coal, measuring 6′ 6″×4′ 6″ ×2′ 3″ thick, fell from a smooth roof parting and a 'joint' from a height of 10 feet and crushed deceased so severely that he died five hours later. The sirdar had left the place only a few minutes before. Inspection and inquiry made.
63	12th July, 11 A.M.	Rampur Mine, Jharsaguda P. O., Bihar and Orissa.	Hingir-Rampur Coal Co., Ld.	Panika, (*m.*), 34, *Coal cutter.*	Coal	While deceased was standing by the side of a shot firer who was tamping a shot hole they heard a noise near a pillar further down in the direction of the dip. The shot firer ran up and deceased ran down the gallery when a block of coal, measuring 8′×5′×3′, fell from a 'cleat' and crushed deceased. The portion that came away had been undercut for 2 feet and was supported by three sprags.

64	27th July, 2 P.M.	Kanbauk Mine, Tavoy P. O., Burma.	Radcliffe and Co., Ld.	Hu Kit, (*m.*), 24, Kum Hung, (*m.*), 22, *Coolies.*	Wolfram	The two deceased were killed by a fall of earth in an open cutting which was being sluiced by monitors.
65	31st July, 4 A.M.	Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Kasim Ali Meah, (*m.*), 35, *Coal cutter.*	Coal	Whilst coal cutters were engaged in extracting a pillar of coal in a pillar cutting district, a mass of coal, measuring 12′×5′×2′ 3″ thick and weighing about 5 tons, fell suddenly from a smooth 'joint.' Deceased was killed on the spot and another was injured. Inspection and inquiry made.
66	31st July, 2 P.M.	Kanbauk Mine, Tavoy P. O., Burma.	Radcliffe and Co., Ld.	Chong Hee, (*m.*), 20, *Coolie.*	Wolfram	A fall of earth occurred. Deceased, who ran back into the danger zone for his coat, was caught by the fall and killed. The other coolies got clear.
67	8th August, 4-30 P.M.	Sendra Mine, Bansjora P. O., Bihar and Orissa.	Sendra Coal Co., Ld.	Bhukan Turi, (*m.*), 36, *Coal cutter.*	Coal	Deceased went through a fence and whilst cutting coal illegally from the side of a pillar, was killed on the spot by the fall of a mass of about 15 tons of coal from the side. Inspection and inquiry made.
68	13th August, 5 P.M.	North Kustore Mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Muktakeshi Ghatwarin, (*f.*), 42, *Coal carrier.*	Coal	Whilst a miner was cutting at a bench of floor coal 6 ft. high in a gallery originally 8 ft. high he brought down from the side, at a height of 5 ft., a wedge-shaped mass of coal and stone, measuring 4′×2′×1′ 6″. Deceased, who was loading coal into a basket, was struck and received injuries from which she died eight hours later. Inspection and inquiry made.
69	21st August, 3-30 P.M.	Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Sudamdih Coal Co., Ld.	Sanjaria Passi, (*f.*), 30, *Coal carrier.*	Coal	Whilst a coal cutter was dressing down overhanging coal from the side of a pillar, 17 ft. high, a mass of coal, measuring 4′×3′ 6″×3′ 6″ and weighing about 3 tons, fell without warning from the side, at a height of about 3 ft. Deceased, who was standing about 15 ft. distant, was knocked down and killed instantly. Two props were also knocked out. Inspection and inquiry made.
70	28th August, 1 P.M.	Sowardih Mine, Bhujudih P. O., Bihar and Orissa.	Sowardih Coal Co.	Lurgu Chamar, (*m.*), 40, *Coal cutter;* Sovia Chamarin, (*f.*), 26, *Coal carrier.*	Coal	The two deceased went through a fence which fences a pathway leading through a quarry to underground workings where they were regularly employed. Whilst they were illegally cutting coal from the face of the quarry and loading it into baskets, they were caught by a fall of a mass of stone, measuring 20′×4′×3′ thick, which they had undermined. Sovia was killed on the spot and Lurgu died the same day as the result of his injuries. Inspection and inquiry made.
71	7th September, 2-3 A.M.	Tirap Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Chin Yan Chan, (*m.*), 30, *Coal filler.*	Coal	Whilst deceased was at work in a small 'chamber,' about 8 feet high, a lump of clay, weighing about 60 lbs., rolled down a steep slope on to him from an abandoned 'chamber' above. He sustained injuries to which he succumbed twenty minutes later. Inquiry made.
72	9th September, 10 P.M.	Kurkend Mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Udua Turi, (*m.*), 20, *Coal carrier.*	Coal	Deceased was employed in carrying coal for a miner, who was cutting floor coal in a gallery 10 feet high, driven through a pillar in a pillar cutting area. During the temporary absence of the sirdar he took the miner's pick and began to cut coal from the side. About a ton of coal fell on him from the side at a height of 4 feet. His chest and ribs were crushed and he died about half an hour later. Inspection and inquiry made.
73	10th September, 9 A.M.	Jamadoba Mine, Jamadoba P. O., Bihar and Orissa.	Indian Collieries Syndicate, Ld.	Jahu Mahato, (*f.*), 18, *Coal carrier.*	Coal	Deceased, whilst carrying coal in a pillar cutting district, was struck by a mass of about 10 cwts. of coal, which fell from the corner of a pillar, 10 feet high. She sustained injuries to which she succumbed a few hours later. Inspection and inquiry made.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*concld.*			
			(*b*) Falls of Side—*concld.*			
74	4th October, 5-30 A.M.	Kankani Mine, Bansjora P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Mohan Bhuia, (*m.*), 25, *Coal cutter.*	Coal	Whilst deceased was robbing coal from the side of a pillar, in a gallery, 22 feet wide and 11 feet high, he was killed on the spot by a fall of a mass of coal, weighing about 30 cwts. The sirdar was prosecuted for a breach of special rules and fined Rs. 5. Inspection and inquiry made.
75	14th October, Midnight.	Sijua Mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ld.	Bhudhain Bhuiani, (*f.*), 13, *Carrier.*	Coal	Deceased was lying asleep in a gallery when a piece of coal, measuring 5′ 6″ × 4′ × 1′ 8″, tapering to feather edges, fell from the side upon her. She was killed instantly. Inspection and inquiry made.
76	30th October, 8-30 A.M.	Bhulanbarari Mine, Jamadoba P. O., Bihar and Orissa.	Bhulanbarari Coal Co., Ld.	Ram Singar Singh, (*m.*), 35, *Munshi.*	Coal	Deceased was killed on the spot by a fall of about 10 cwts. of coal from the corner of a pillar of coal. Inspection and inquiry made.
77	1st November, 2 A.M.	South Baraboni Mine, Charanpur P. O., Bengal.	South Baraboni Coal Co.	Bhikar Manjhi, (*m.*), 55, *Miner.*	Coal	Deceased entered some old fenced workings without authority and commenced to cut coal from a pillar. He was injured by a fall of overhanging coal and died about an hour later. Inspection and inquiry made.
78	5th November, 6-30 P.M.	Titulmuri Mine, Sijua P. O., Bihar and Orissa.	Titulmuri Collieries, Ld.	Jugal Bauri, (*m.*), 32, *Coal cutter.*	Coal	Deceased and four other miners were employed in cutting floor coal in a level gallery, 21 feet in height. Whilst he was robbing coal from the corner of a pillar, a wedge-shaped mass of coal, measuring 3′ × 9′ × 14′ and weighing about 5 tons, fell from the corner from a height of 7 feet. He was killed on the spot. Inspection and inquiry made.
79	8th November, 10 A.M.	Barari Mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Beni Kahar, (*m.*), 30, *Surface trolley man.*	Coal	Deceased and three other trolleymen, all of whom worked on the surface, removed the fencing from the entrance to an incline, entered the mine and breaking down a fence underground entered an unused gallery 20 feet high and 12 feet wide, where they began to rob coal from the side. Whilst so engaged a mass of about 2 tons of coal fell from the side at a height of 10 feet. Deceased sustained injuries to which he succumbed the following day. The other men absconded shortly after the accident. Inspection and inquiry made.
80	10th November, 12-30 P.M.	Bansjora Mine, Bansjora P. O., Bihar and Orissa.	Bansjora Coal Co., Ld.	Dassu Turi, (*m.*), 20, *Coal cutter.*	Coal	Deceased and another coal cutter were commencing the driving of a split gallery, 11 feet wide and 7 feet high, through a pillar, 31 feet square and 17 feet in height, when a wedge-shaped mass of coal, 8′ wide × 5′ 0″ thick × 10′ 0″ high, fell from the side of the pillar over the roof of the split gallery. Deceased was killed on the spot. Inspection and inquiry made.

81	12th November, 11 A.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Pancham Passi, (*m.*), 28, *Coal shoveller.*	Coal	Whilst some coolies were loading coal in a 'chamber', measuring 60′ × 36′ × 16′ high, a mass of coal, about 300 lbs. in weight, fell from the side, at a height of 8 feet. Deceased was killed on the spot and another man sustained severe injuries which disabled him for six weeks. Inquiry made.
82	17th December, 0-30 A.M.	Khost Mine, Khost P. O., Baluchistan.	North-Western Railway	Mahomed Sharif, (*m.*), 30, *Mine carpenter.*	Coal	Whilst deceased was making a foot-hole for a new prop to be put alongside a broken one, in the line of coal face timbering, part of the seam came away from a hidden 'back' and fell upon him and killed him. The coal seam at this place was abnormally thick owing to a local doubling of the lower coal.
83	31st December, 10 A.M.	Aldih Mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Dhuli Manjhian, (*f.*), 28, *Dust woman.*	Coal	Deceased was loading dust, whilst pillar robbing was in progress in a fenced gallery, when a slab of side coal, measuring 2′×2′×9′ high, fell upon her and killed her outright. Inspection and inquiry made.
			IN SHAFTS.			
			Whilst ascending or descending by machinery—(*3 deaths*).			
84	19th May, 8 P.M.	Benahir Mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Pokla Bilaspuri, (*m.*), 42, *Coal cutter.*	Coal	Whilst five persons were ascending in a cage from the bottom of a shaft, 243 feet deep, an empty tub fell from the descending cage and struck the ascending cage. Deceased was killed, one other person was severely injured and three other persons were thrown out, falling a distance of about 10 feet. The frame and roof of the cage were badly damaged and the roofing at the shaft bottom was demolished. The bankman, who, against standing orders, placed the empty tub in the cage and neglected to place the top bar in position, absconded immediately after the accident. He had held the post for two years. The cage was not fitted with safety gates or chains. Inspection and inquiry made.
85	4th August, 9-15 A.M.	Saltore Mine, Dishargarh P. O., Bengal.	Saltore Coal Co., Ld.	Sukhi Manjhian, (*f.*), 18, *Miner's kamin.*	Coal	Deceased, whilst being raised to the surface, attempted to step out of the cage on to a shaft bottom in mistake for the surface flat sheets. She fell to the bottom of the shaft, a depth of 97 feet, and was killed instantly. The cage was not fitted with safety gates or chains. Inspection and inquiry made.
86	4th September, 3 P.M.	Ramagiri Mine, Morriston P. O., Madras.	Anantapur Gold Fields, Ld.	Kaja Meah, (*m.*), 24, *Pump driver.*	Gold	Whilst deceased was riding in a bucket the crosshead, working on rope guides, stuck 20 feet above the bucket and then fell. He fell to the bottom of the shaft having probably jumped off as the crosshead was too high to strike him. Riding in buckets is not allowed.
			Falling into the shaft from the surface—(*3 deaths*).			
87	15th March, 3 P.M.	East Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Dogor Khan, (*m.*), 24, *Labourer.*	Coal	Deceased was one of a gang of men employed in erecting a steel head-gear. Whilst engaged in covering the top of the shaft with beams, he overbalanced and fell to the bottom of the shaft, 250 feet below. He was killed on the spot. Inspection and inquiry made.
88	5th May, 10 P.M.	Panchgatchia Mine, Sitarampur P. O., Bengal.	Lutchipur Coal Co., Ld.	Gopi Meah, (*m.*), 45, *Banksman.*	Coal	Deceased failed to notice that the automatic gate, protecting one side of the shaft, had not fallen into position after the cage had left the surface. He pushed a tub, presumably in a moment of carelessness, into the unprotected shaft, and, in so doing, was carried down with it. He was killed instantly. Inspection and inquiry made.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			IN SHAFTS—*contd.*			
			Falling into the shaft from the surface—*concld.*			
89	18th June, 4 A.M.	East Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Etwari Chamar, (*m.*), 40, *Trolleyman.*	Coal	Deceased and another man walked through the cage at the surface pushing out a loaded tub in front of them. As they emerged at the opposite side the cage went up about 7 feet. Deceased lost his balance and fell backwards to the bottom of the shaft, 175 feet below. It is probable that the steam valve of the winding engine was not completely closed and that as soon as the tub left the cage, the decrease in the weight on the rope was sufficient to permit the steam to move the engine and raise the cage. Inspection and inquiry made.
			Falling from part of the way down—(*3 deaths*).			
90	3rd February, 10-15 A.M.	Angarpatra Mine, Katrasgarh P. O., Bihar and Orissa.	Union Coal Co., Ld.	Manthu Meah, (*m.*), 35, *Contractor.*	Coal	Whilst placing in position a plank between the cage and a temporary inset in a shaft, deceased overbalanced and fell to the bottom of the shaft, 40 feet below. He was killed on the spot. Inspection and inquiry made.
91	6th July, 9-30 P.M.	Sudamdih Mine, Bhujadih P. O., Bihar and Orissa.	Empire Coal Co., Ld.	Jugal Bauri, (*m.*), 22, *Pump minder.*	Coal	Deceased was employed in attendance on a pump, resting on girders, at an inset, 90 feet above the bottom of a sinking shaft, 275 feet deep. By some means unknown he slipped from the pump platform and fell to the bottom of the shaft. He was killed on the spot. Inspection and inquiry made.
92	3rd October, 3-30 P.M.	Jibutil Mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Kollapurigadu, (*m.*), 25, *Stuff coolie.*	Gold	Deceased was climbing up a shaft by the ladder way and apparently climbed through the timbers, dividing the skip way from the ladder way, in order to place a bundle of cloth in a recess to the west of the shaft, a few feet from the surface. In doing this he fell to the bottom of the shaft, a depth of a thousand feet, where his body was found.
			Things falling from the surface—(*1 death*).			
93	23rd January, 1 P.M.	Lutchipur Mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Bhusan Bauri, (*m.*), 26, *Onsetter.*	Coal	Deceased, an onsetter, had loaded a cage with a full tub and was tying a tub tally to it. Whilst so engaged, a piece of coal fell from the surface, a distance of 376 feet, on to the top of his head. He received injuries from which he died fifteen hours later without recovering consciousness. Inspection and inquiry made. *See Report, page 9.*

			Things falling from part of the way down—(*4 deaths*).			
94	3rd February, Noon.	West Gopalichak Mine, Kurkend P. O., Bihar and Orissa.	Gopalichak Coal Co., Ld.	Ram Manjhi, (*m.*), 30, *Sinker.*	Coal	Whilst at work in the bottom of a sinking shaft, 320 feet deep, deceased was struck on the head by something falling from above and he fell into water. The body was recovered half an hour later. The wound on the head was sufficient to cause death. Inspection and inquiry made.
95	1st October, 5-30 P.M.	Sudamdih Mine, Bhujudih P. O., Bihar and Orissa.	Empire Coal Co., Ld.	Gholam Mahomed, (*m.*), 32, *Fitter's labourer.*	Coal	A duplex pump was suspended in a sinking shaft, at a depth of 240 feet, and it became necessary to raise it to about 4 feet from out of accumulated water. The level of the water was being maintained by a pulsometer pump, suspended at the same point. As the clearance between the pump was small, the deceased and three other men stood on the pump to fend it off from the pulsometer pump and from the walls of the shaft. As the pump was being raised deceased was struck on the head by some unknown object falling from above and he fell into the water. His body was recovered two days later. Inspection and inquiry made.
96	14th November, 3-30 P.M.	Bulliari Mine, Kustore P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Lab Singh, (*m.*), 35, *Fitter's labourer.*	Coal	A pump and a range of wrought steel pipes, 6″ in diameter and 600′ in length, with screwed joints, were suspended in a shaft. The pump and pipes were being lowered, when the pump fouled a bunton, with the result that one of the pipes immediately above the pump buckled and had to be taken out. Whilst the pipe was being replaced, the suspended range of pipes parted in the middle at a joint and a length of 300 feet of the pipes fell to the bottom of the shaft, 40 feet below. Of the seven persons engaged in fitting the new pipe, one was killed and two were injured. Inspection and inquiry made. *See Report, page 9.*
97	31st December, 4-30 P.M.	Dishargarh Mine, Dishargarh P. O., Bengal.	Equitable Coal Co., Ld.	Boal Bauri, (*m.*) 30, *Onsetter.*	Coal	A piece of wood, measuring 8″×4¾′×4¾′, fell from behind a receiving skid at the top of a shaft, 487 feet deep, and struck deceased on the head, killing him outright. Inspection and inquiry made.
			Miscellaneous—(*3 deaths*).			
98	16th February, 4 A.M.	Lakorka Mine, Katrasgarh P. O., Bihar and Orissa.	Lakorka Coal Co., Ld.	Bhim Singh, (*m.*), 25, *Pump khalasi.*	Coal	Deceased was found lying dead in a tub at the bottom of a shaft, 180 ft. in depth. There was no evidence to show how he met his death. Inspection and inquiry made.
99	9th November, 11-30 A.M.	Loyabad Mine, Bansjora P. O., Bihar and Orissa.	Barakar Coal Co., Ld.	Mata Phal Ahir, (*m.*), 23, *Line mistri.*	Coal	Deceased attempted to bring up a rail, 9′ 6″ long, in a cage at a winding shaft, by holding it vertically at one end of the cage. When the cage reached the surface, the end of the rail struck the beam to which the keps were attached. The rail slid along the floor of the cage and deceased was forced out of the cage and killed by falling to the bottom of the shaft, 286 feet below. Inspection and inquiry made.
100	3rd December, 9 A.M.	Madhubpur Mine, Raniganj P. O., Bengal.	Imperial Coal Co., Ld.	Borada Baurin, (*f.*), 36, *Slack carrier.*	Coal	Deceased and another woman attempted, without permission, to push a tub of slack through a cage which had not settled on the keps. They followed the tub on to the cage and their additional weight was sufficient to turn the engine round and to cause the cage to descend. One woman jumped back to bank and the other, in attempting to do so, was caught between the top of the cage and the bank and crushed so severely that she died shortly afterwards. The shaft was not used for raising coal. Inspection and inquiry made.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			EXPLOSIVES—(7 *deaths*).			
101	27th January, 3 P.M.	South Jibutil Mine, Morriston P. O., Madras.	Jibutil Gold Mines, Ld.	Moideen Cutti, (*m.*), 22, *Hand jumper coolie.*	Gold	Deceased was drilling in a socket of an old shot hole when an explosion of dynamite occurred. He died of the wounds received, on the following day. In all probability he removed a plug which is placed in an old socket hole to avoid this class of accident. Other coolies admitted they were warned not to go there. Inquiry held.
102	15th February, 2-30 P.M.	Katras Mine, Katrasgarh P. O., Bihar and Orissa.	Nowagarh Coal Co., Ld.	Mohabir Singh, (*m.*), 28, Bhatu Gope, (*m.*), 40, *Stone cutters.*	Coal	The two deceased were working in a sinking shaft in which some shots had previously been fired. Whilst so engaged, an unexploded charge went off and killed Mohabir outright. Bhatu died on the following day consequent upon injuries he had received. Inspection and inquiry made.
103	28th March, 6-15 A.M.	Ramagiri Mine, Morriston P. O., Madras.	North Anantapur Gold Mines, Ld.	Syed Ali Cutti, (*m.*), 24, *Blaster.*	Gold	Deceased, after lighting some fuses in the bottom of a well, 30 ft. deep, was being hoisted to the surface in a bucket. He had with him a jumper drill which caught in a sollar. While he was liberating the bucket the charges commenced to explode and this caused him to fall to the bottom and he was killed by the explosion of the remaining charges.
104	6th July, 11 P.M.	Sibpur Mine, Charanpur P. O., Bengal.	Minto Coal Co., Ld.	Maharaj Din Passi, (*m.*), 30, *Miner.*	Coal	Deceased entered a fenced gallery, drilled a hole and fired a shot. His body was found beneath a piece of coal, measuring 4′×2′×1′ 6″, which had fallen from a 'slip' from a height of 12′ 9″. He either had gone to see the effect of the shot before the place had settled or he was dressing some side coal. The sirdar was in the mine and heard the shot. Inspection and inquiry made.
105	15th July, 12-10 P.M.	Sabetaung Mine, Sabetaung P. O., Burma.	Jamal Bros. & Co., Ld.	Maung Cho Myain, (*m.*), 19, *Coolie.*	Copper	As deceased was lying in his hut he was struck by a piece of stone which was hurled from a shot hole 800 ft. away and entered through the roof of the hut. He died from shock.
106	27th November, 4 P.M.	K. 32 Mine, Kodarma P. O., Bihar and Orissa.	Hoare, Miller & Co.	Bhatua Turi, (*m.*), 12, *Coolie.*	Mica	Deceased and a companion were dressing the entrance of an inclined shaft with a hammer and chisel, when an explosion occurred. The chisel appears to have come in contact with an unexploded cartridge of dynamite, the result of a misfire some years before. He died five hours later from shock. Inspection and inquiry made.
			IRRUPTIONS OF WATER OR FALLING INTO WATER—(3 *deaths*).			
107	26th July, 8 A.M.	Lutchipur Mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Kesori Gowala, (*m.*), 30, Chandu Bauri (*m.*), 32, *Pumpmen.*	Coal	The two deceased, while attending to a pump at the bottom of a shaft, 155 feet deep, were overcome by black damp and fell into water, 4′ 9″ deep, and were drowned. Inspection and inquiry made.

108	19th September, 9 A.M.	Kutchidhana Mine, Ramakona P. O., Central Provinces.	Indian Manganese Co.	Maltu, (*f.*), 14, *Coolie.*	Manganese	Deceased went to bathe in a flooded portion of an open working and, stepping out of her depth, was drowned before aid could be rendered. Since the accident this place has been more securely fenced.
			HAULAGE—(*17 deaths*).			
109	16th January, 1-15 P.M.	Sitalpur Mine, Dishargarh P. O., Bengal.	Bengal Coal Co., Ld.	Domor Gope, (*m.*), 40, *Miner.*	Coal	Deceased and another person were riding on a set of fifteen empty tubs, against orders. The set descended a road dipping 1 in 5½ and was derailed at some 'points.' The leading three tubs were overthrown with the result that deceased was killed outright. Inspection and inquiry made.
110	31st January, 1 A.M.	Lutchipur Mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Ramnath Singh, (*m.*), 29, *Sirdar.*	Coal	Deceased was a sirdar, employed in the night shift of a pillaring district. Presumably feeling tired, he laid down on a couple of sleepers between the rails of a tramming level. Whilst in this position, he was run into by a loaded tub and received an injury to the spine. He died forty-six hours later in consequence. Inspection and inquiry made.
111	18th February, 10-30 A.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Rajuba Bhumij, (*m.*), 24, *Incline attendant.*	Coal	Whilst deceased was re-railing an empty tub on a haulage incline, the pin of the D link fell out and the loaded tub ran wild down the incline. He was struck by the tub and received injuries from which he died an hour later. Inspection and inquiry made.
112	27th March, 7 A.M.	Sudamdih Mine, Bhujudih P. O., Bihar and Orissa.	Empire Coal Co., Ld.	Sarada Baurin, (*f.*), 32, *Coal carrier.*	Coal	Owing to the fracture of a coupling chain on a haulage slope, two loaded tubs ran wild on a grade of 1 in 1·3. Deceased, who was stacking coal on a level gallery, was struck by coal thrown from the tubs when they overturned. She was killed on the spot. Inspection and inquiry made.
113	15th April, 7 A.M.	Sodepur Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Mangal Manjhi, (*m.*), 16, *Miner.*	Coal	Deceased was making an attempt to take an empty tub down a recognised haulage road, dipping 1 in 5, when it overpowered him. He was knocked down and killed outright. Inspection and inquiry made.
114	20th June, 4 P.M.	Kuldiha Mine, Giridih P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Anadi Chamar, (*m.*), 40, *Pump khalasi.*	Coal	Some empty tubs were being propelled along a haulage level. Owing to the grade the progress of the tub along the level, near the brow, could only be effected by drawing back repeatedly the tub attached to the rope, the full length of its coupling chain, and then returning it with a bump against the leading tubs. One of these bumps caused a coupling hook to be detached and five tubs broke and ran wild. They became derailed at the bottom of a jig knocking out three props, behind which deceased and two others were taking refuge. The props struck all three persons and inflicted serious injuries. Deceased died five hours later. Inspection and inquiry made.
115	16th July, 4-30 P.M.	Dandot Mine, Dandot P. O., Panjab.	Thakur Dass Ramji Dass	Kirpa Ram, (*m.*), 52, *Chowkidar.*	Coal	Deceased, while crossing the tub line, against orders, was knocked down by a set of six loaded tubs and killed instantly.
116	24th July, 10 A.M.	Dumarkunda Mine, Barakar P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Kokar Bauri, (*m.*), 17, *Miner.*	Coal	A tub of earth was being unloaded in a haulage road, when the coupling attaching it to the set became unhooked. The tub ran to a junction where it became derailed and struck deceased, killing him instantly. It was surmised that the tub broke away while overturning it, to facilitate unloading. Inspection and inquiry made.
117	6th August, 11-30 P.M.	Banakuri Mine, Toposi P. O., Bengal.	Banakuri Coal Co., Ld.	Dhangi Manjhian, (*f.*), 35, *Kamin.*	Coal	Deceased was crushed between a coal pillar and a tub, which had run away in a haulage road, owing to a coupling having been detached. Inspection and inquiry made.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			HAULAGE—*concld.*			
118	10th September, 1-30 P.M.	Mohpani Mine, Mohpani P. O., Central Provinces.	Great Indian Peninsula Railway Co.	Manghia Gaudni, (*f.*), 16, *Coal carrier.*	Coal	The fourth tub of a set of ten tubs of earth became derailed, a coupling chain became detached and three tubs ran wild and ran over deceased who was 42 feet away. The man in charge should have seen that all persons were safe before signalling for the set to come down.
119	14th September, 9 A.M.	West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gunri, (*f.*), 22, *Labourer.*	Coal	Deceased was one of a gang of four women and one man, in charge of an experienced man, who were employed in cleaning the water channel on a haulage road. A train of loaded tubs passed them and deceased appears to have lost her head and to have jumped in front of the train. She was killed on the spot. The road was wide at the place of accident and there were convenient refuge holes close at hand. Inquiry made.
120	1st October, 5-30 P.M.	Dishargarh Mine, Dishargarh P. O., Bengal.	Equitable Coal Co., Ld.	Buahi Baurin, (*f.*), 13, *Dust kamin.* Sasi Baurin, (*f.*), 10, *Not employed.*	Coal	A set of nine loaded tubs was being drawn out of a level when, owing to the draw-bar of the third tub breaking, the last six tubs ran wild. The two deceased, who were following the set, were crushed against a pillar by two of the tubs and received injuries from which they died. Inspection and inquiry made.
121	26th October, 8-30 P.M.	Dishargarh Mine, Dishargarh P. O., Bengal.	Equitable Coal Co., Ld.	Jhari Meah, (*m.*), 50, *Door minder.*	Coal	Deceased, who was in charge of a ventilation door in a main haulage road, was knocked down by a set of empty tubs. He died of shock three and a half hours later. Inspection and inquiry made.
122	6th November, 8 A.M.	Dishargarh Mine, Dishargarh P. O., Bengal.	Equitable Coal Co., Ld.	Peju Bouri, (*m.*), 32, *Tram rider.*	Coal	A set of seven loaded tubs was being raised in an incline, when the two leading tubs became derailed. Deceased was riding on the first tub and in jumping off he slipped and fell between the derailed tubs. He died of his injuries sixteen days later. Inspection and inquiry made. *See Report, page 10.*
123	1st December, 9-30 A.M.	Jharia Khas Mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Jhogru Koiri, (*m.*), 28, *Labourer.*	Coal	Whilst deceased was working with a carpenter on a haulage slope, four tubs became uncoupled and broke away from a set of seven empty tubs which was being lowered down the slope. Deceased was struck by the tubs and died two days later without recovering consciousness. Inspection and inquiry made.
124	12th December, 5 P.M.	Banderchua Mine, Domchanch P. O., Bihar and Orissa.	F. F. Chrestien and Co., Ld.	Sukra Musohar, (*m.*), 12, *Tool carrier.*	Mica.	Deceased was crushed between a moving tub and the side wall of a haulage adit and was killed outright. Inspection and inquiry made.
			SUNDRIES UNDERGROUND—(*13 deaths*).			
125	6th January, 3-30 P.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Kanai Napit, (*m.*), 28, *coal shoveller.*	Coal	Whilst deceased was shovelling coal from a heap of loose coal in a 'chamber', a lump of coal rolled down from the heap and struck him, inflicting injuries from which he died within a few hours. Inspection and inquiry made.

126	2nd April, 12-30 A.M.	Titulmuri Mine, Sijua P. O., Bihar and Orissa.	Titulmuri Collieries, Ld.	Chilangi Roy, (*m.*), 30, *Coal cutter.*	Coal	Deceased was at work in the face of a narrow gallery, 155 feet long × 3′ 6″ high × 3′ wide, driven to the full rise, on a slope of 1 in 2, for the purpose of making a connection with an adjacent mine. When connection was effected by means of a blow from a pick, a rush of air and a small quantity of water came through the hole and blew out their candles. Deceased apparently became alarmed and ran down the steep slope. His body was found later at the lower end of the gallery. The medical evidence was that death was probably due to heart failure caused by exhaustion. His two mates remained where they were, and after enlarging the hole with the pick, got out through the connection. Inspection and inquiry made.
127	10th April, 11-30 A.M.	Tirody Mine, Balaghat P. O., Central Provinces.	Rao Sahib W. Laxminarayan.	Sudu Purdan, (*m.*), 65, *Coolie.*	Manganese	Deceased and some other coolies were ordered by the mate in charge to stop work whilst another coolie rolled a tree down the steps where they were working. For some unknown reason, deceased returned and was struck by the tree. He died the following day.
128	12th April, Noon.	Shekpur Mine, Charanpur P. O., Bengal.	Minto Coal Co., Ld.	Basini Bauri, (*f.*), 13, *Mason's kamin.*	Coal	Deceased, who had been alarmed by some shouting, ran out of a gallery and tripped over some bricks at the entrance. She fell under an approaching loaded tub, the front wheels of which ran over her left leg and caused a compound fracture. She died four days later from heart failure consequent upon shock. Inspection and inquiry made.
129	27th April, 9 A.M.	Loyabad Mine, Bansjora P. O., Bihar and Orissa.	Barakar Coal Co., Ld.	Bhudan Manjhi, (*m.*), 32, *Coal cutter.*	Coal	Whilst deceased was walking out of the mine, up a slope of 1 in 5, he was attacked by illness, probably epilepsy. He fell backwards and his head struck a sharp ledge on the edge of a coal pillar. The base of his skull was fractured and he died on the spot. Inspection and inquiry made.
130	29th May, 2 P.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Radha Bhumij, (*f.*), 30, *Tub pusher.*	Coal	Deceased was employed in carrying a safety lamp for two tub pushers on a tram road. Whilst she was walking behind a tub, which was being pushed out, she was crushed against the side of the road by a following tub which had got out of control, owing to the breaking of a wooden sprag. She sustained injuries to which she succumbed five weeks later. Inquiry made.
131	25th July, 10 A.M.	Dandot Mine, Dandot P. O., Panjab.	Thakur Dass Ramji Dass	Kalu, (*m.*), 14, *Stone coolie.*	Coal	Deceased fell down at the approach of some tubs and died four hours after being brought to the surface, probably from heart failure. It is doubtful whether he was actually touched by the tubs.
132	3rd August, 3 P.M.	Serampur Mine, Giridih P. O., Bihar and Orissa	East Indian Railway Co.	Ganpat Chamar, (*m.*), 40, *Miner.*	Coal	A workman prised down a piece of coal, measuring 4′ × 3′ 6″ × 3′. It rolled down a steep side of a fall of coal in the goaf and in its path it collided with a prop, 21 feet long, knocking it out. The prop struck deceased on the head causing fracture of the skull, from the effects of which he died about five hours later. Inspection and inquiry made.
133	7th August, 7 A.M.	Bejdih Mine, Sitarampur P. O., Bengal.	Equitable Coal Co., Ld.	Prasanna Baurin, (*f.*), 45, *Bailing kamin.*	Coal	Deceased was sleeping by the side of a tramming level, with her left leg lying over a rail. A loaded tub came along and grazed her leg, causing a severe and dirty lacerated wound. Gangrene set in and she died sixty days later. Inspection and inquiry made.
134	4th November, 8-30 P.M.	North Kustore Mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Meghni Turini, (*f.*), 24, *Coal carrier.*	Coal	Whilst deceased was pushing a loaded tub down a slight grade, a coal cutter following behind with another tub, overtook her. The second tub ran over her and she sustained injuries from which she died two days later. Inspection and inquiry made.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			SUNDRIES UNDERGROUND—*contd.*			
135	2nd December, 10 A.M.	Jibutil Mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Raicherla Marrigadu, (*m.*), 34, *Stuff coolie.*	Gold	Deceased, while tramming with two others, was pulling the tub from in front instead of pushing it from behind. He got caught between the tub and the props on the side of the level. His chest was crushed and he was killed.
136	4th December, 8-15 A.M.	Old West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Surai Chamar, (*m.*), 22, *Mason's labourer.*	Coal	Deceased was one of a gang of labourers, regularly employed in cooling, by means of water, an arching, which shut off an old fire on a haulage road. Whilst engaged in throwing water on the hot sand behind the arching, he was scalded by a rush of steam and succumbed to his injuries four days later. Inquiry made.
137	8th December, 5-30 A.M.	Jharia Khas Mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Sida Bilaspuri, (*m.*), 25, *Coal cutter.*	Coal	Whilst a miner in a pillar cutting district was getting down roof coal, a large lump of coal fell against a prop, 19 feet in length, and knocked it out. The upper end of the prop struck deceased on the head and killed him instantly. Inspection and inquiry made.
			SURFACE MACHINERY—*(5 deaths).*			
138	12th January, 3-30 P.M.	Ghusik Mine, Kalipahari P. O., Bengal.	Ghusik and Muslia Collieries, Ld.	Fulu Hazra, (*m.*), 55, *Coolie.*	Coal	Whilst lowering a Lancashire boiler down the slope of a railway embankment, by means of a hand winch which was not provided with a brake, the boiler overpowered the twelve men at the handles. The wheels commenced to revolve at a great speed. Deceased was caught by one of the handles and sustained injuries from the effects of which he died six hours later. Inspection and inquiry made. *See Report, page 10.*
139	7th September, 2 P.M.	Sijua Mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ld.	Parshotam Latore, (*m.*), 35, *Labourer.*	Coal	A double purchase crab winch, geared at 54 to 1, was being used for rolling a Lancashire boiler, weighing 15 tons, up a slope of 1 in 3 on to an embankment, 8 feet high. Owing to the excessive strain set up when the flanges of the boiler touched the ground, the foundation bolts of the winch broke, the machine overturned and was jerked forward by the weight of the boiler when it rolled backward. The eight men turning the handles of the winch were hurled to the ground and deceased, who was one of them, received such severe injuries that he died a few hours later. Inspection and inquiry made. *See Report, page 10.*
140	9th September, 11-30 A.M.	Burelia Mine, Chora P. O., Bengal.	Burelia Coal Co., Ld.	Domon Bauri, (*m.*), 40, *Coolie.*	Coal	Deceased was struck on the head by the driving belt of a screening plant. *Tetanus* set in and he died four days later. Inspection and inquiry made. *See Report, page 10.*
141	28th September, 2-45 P.M.	Lodna Mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Suker Sirdar, (*m.*), 35, *Labourer.*	Coal	Whilst deceased was feeding slack coal into a disintegrating machine, one of the cast iron gear pulleys, 4′ in diameter × 8″ wide × $\frac{3}{4}$″ thick, flew to pieces and he was killed on the spot by a flying fragment. Inspection and inquiry made.

142	6th November, 1 P.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Bedo Kumbar, (*m.*), 18, *Screener.*	Coal	Deceased was climbing along some girders in a screening plant while the machinery was in motion and fell into the elevator. He was crushed severely and died twenty-one days later. Inspection and inquiry made.
			SURFACE BOILERS OR PIPES BURSTING— (*1 death*).			
143	3rd December, 9-5 A.M.	Malkera-Choitodih Mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Panu Lohar, (*m.*), 35, *Enginewright.*	Coal	Whilst working alone at a steam pump in a ledge at the bottom of a shaft, 350 feet deep, deceased turned on the steam without first opening the drain cock. Water hammer occurred and the steam valve was blown to pieces. Deceased received injuries to which he succumbed two days later. Inspection and inquiry made.
			ON SURFACE RAILWAYS AND TRAMWAYS BELONGING TO THE MINE—(*7 deaths*).			
144	6th February, 4 P.M.	Sowardih Mine, Bhujudih P. O., Bihar and Orissa.	Sowardih Coal Co.	Panchu Mullick, (*m.*), 45, *Tramming coolie.*	Coal	Whilst deceased was pushing a tub on a surface tram line, he slipped and fell and was run over by another loaded tub, which was following and which was being pushed by another trammer. His leg was amputated but he died three days later. Inspection and inquiry made.
145	16th February, 10-30 A.M.	Samla-Kendra Mine, Pandaveswar P. O., Bengal.	Samla and Kendra Collieries Syndicate, Ld.	Rajnandan Singh, (*m.*), 20, *Dak peon.*	Coal	Deceased, in boarding the blind side of a locomotive, which was leaving a siding, was trapped between it and the rear tub of a set standing on another pair of rails. He received injuries from which he died a few hours later. Inspection and inquiry made.
146	15th April, 6 P.M.	Lakorka Mine, Katrasgarh P. O., Bihar and Orissa.	Lakorka Coal Co., Ld.	Dobari Gope, (*m.*), 22, *Trammer.*	Coal	Deceased was pushing an empty tub on a surface tram line and on the approach, from behind, of a set of loaded tubs on a parallel tub line he appears to have lost his presence of mind and to have run in front of the set. He was run over and received injuries to which he succumbed two days later. Inspection and inquiry made.
147	28th April, 11-30 P.M.	Kurharbari Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Jagannath Chamar, (*m.*), 30, *Miner.*	Coal	Deceased was lying across the rails of a metre-gauge line on a bridge, when he was run over and killed by a locomotive and train. He was probably asleep at the time. Inspection and inquiry made.
148	3rd May, 6-30 P.M.	Sudamdih Mine, Bhujudih P. O., Bihar and Orissa.	Sudamdih Coal Co., Ld.	Nagwya Bhuia, (*m.*), 10, *Coal picker.*	Coal	Deceased was run over by a set of loaded tubs, which was being hauled along a level tub line by a pair of buffaloes. He died nine hours later. It is presumed that the boy was riding on the tubs, but no one saw him doing so. The practice is forbidden. Inspection and inquiry made.
149	27th August, 5 P.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Chattur Meah, (*m.*), 55, *Trolleyman.*	Coal	Deceased was crushed between two loaded tubs at a pit bank tippler. In lowering the first tub to the tippler he omitted to transfer its locker to the second tub. He succumbed to his injuries six hours later. Inspection and inquiry made.
150	25th December, 11 A.M.	Jainty Mine, Karmataur P. O., Bihar and Orissa.	Villiers Colliery Co., Ld.	Nehal Meah, (*m.*), 36, *Trolleyman.*	Coal	While four men were lowering a set of eight empty tubs on a surface tub line, dipping 1 in 28, an empty tub ran uncontrolled behind and crushed deceased against the set. He died twelve days later from his injuries; the other men jumped aside and escaped. Inspection and inquiry made.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Cause of accident and remarks.
			MISCELLANEOUS ON SURFACE—(*24 deaths*).			
151	28th January, 3-30 P.M.	Hpaungdaw Mine, Tavoy P. O., Burma.	Quah Cheng Guan .	Mahomed Gul, (*m.*), 25, *Miner.*	Wolfram .	Deceased was leaving an adit in which he had been working, against orders, and was buried under a fall of earth which occurred at the mouth of the adit and was suffocated.
152	3rd April, 4 P.M.	Sudamdih Mine, Bhujudih P. O., Bihar and Orissa.	Sudamdih Coal Co., Ld. .	Jomona Mahato, (*f.*), 36, *Earth cutter.*	Coal .	While a gang of coolies was engaged in removing a spoil heap, some of them sat down in the shade afforded by a vertical face of earth 9 feet high. Whilst they were sitting smoking a mass of about 2 tons of earth fell upon them. Deceased sustained a fracture of the spine and died a few hours later. A girl sustained a broken leg and internal injuries. Inspection and inquiry made.
153	20th April, 6-30 P.M.	Monoharbahal Mine, Asansol P. O., Bengal.	Baraboni Coal Concern, Ld.	Behari Dome, (*m.*), 35, *Earth cutter.*	Coal .	Deceased was bailing water out of a bridge foundation trench. Whilst so engaged a mass of earth fell from one of the sides upon him and inflicted an injury to the spinal cord. He died two and a half hours later from heart failure consequent upon convulsions caused by the nature of his injury. Inspection and inquiry made.
154	26th April, 12-30 P.M.	Chitidand Mine, Golpur P. O., Panjab.	Panjab Coal Co. . .	Abdul Halim, (*m.*), 13; Usaf, (*m.*), 13, *Miscellaneous men.*	Coal .	The two deceased were sitting by the side of a mine tramward, under the shadow of a hill, when a landslip took place and a portion of the side of the hill, measuring 17′ in length × 15′ in height × 6′ in thickness, fell upon them and killed them. Inspection and inquiry made.
155	25th May, 8 P.M.	Begunia Khas Mine, Barakar P. O., Bengal.	The Honb'le Maharaj Sir Manindra Chandra Nandi.	Rada Balf Sircar, (*m.*), 20, *Store-keeper babu*; Jagal Bauri, (*m.*), 13, *Store coolie.*	Coal .	The two deceased were burned to death in an oil godown. There is no evidence to show how the fire originated. Inspection and inquiry made. *See Report, page 10.*
156	13th June, 1-30 P.M.	Kessabganj Mine, Kalipahari P. O., Bengal.	Gunpat Ram Marwari .	Mahan Bauri, (*m.*), 45, *Head khalasi.*	Coal .	Deceased who suffered from a complaint of the lungs, was taken with a violent fit of coughing whilst standing on the top of a vertical boiler. In attempting to reach the ground he fell from a height of 11′ 6″. He was picked up unconscious and remained in this condition until death ensued half an hour later. In the absence of medical opinion death is assumed to be due to natural causes but accelerated by shock. Inspection and inquiry made.
157	5th July, 11 A.M.	Chitidand Mine, Golpur P. O., Panjab.	Panjab Coal Co. . .	Khuda Bux, (*m.*), 42, *Coolie.*	Coal .	Deceased was ordered to drill a hole in a stone, measuring 14′×8′×8′, in the side of a hill; instead of drilling a hole he attempted to loosen it from underneath, when it suddenly fell over on to him killing him on the spot.
158	10th August, 2 P.M.	Chooling Mine, Maliwun P. O., Burma,	Burma Development Syndicate, Ld.	Bahi Singh, (*m.*), 35, *Coolie.*	Tin .	Whilst deceased was working in an open cut excavation he slipped and fell 30 feet on to his head, breaking his neck.

159	12th August, 10-30 A.M.	Bhelatand Mine, Sijua P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Dhuma Singh, (*m.*), 25, *Labourer.*	Coal	Whilst deceased and two other men were at work inside an empty boiler they were scalded by an inrush of steam. The steam came through a blow-off pipe, which was connected to the blow-off pipe of another boiler, which was under steam. Deceased died four hours later. The other two men were only slightly injured. Inspection and inquiry made. *See Report, page 11.*
160	22nd August, 5 P.M.	Square Iqy Mine, Kodarma P. O., Bihar and Orissa.	L. Narayan . . .	Gunpal Musohar, (*m.*), 16, *Coolie.*	Mica	Deceased was removing *débris* from an excavation and fell about 5 feet on to a stone. He fractured his jaw and died a few hours later.
161	31st August, 3-30 A.M.	Chanda Mine, Jharia P. O., Bihar and Orissa.	R. A. Mucadum & Sons .	Bidi Baurin, (*f.*), 25; Chandni Baurin, (*f.*), 25; Dhami Baurin, (*f.*), 16; *Coal carriers*; Bijai Bauri, (*m.*), 32; Beni Bauri, (*m.*), 45; Jadu Bauri, (*m.*), 35; *Coal cutters*; Gora Bauri, (*m.*), 6; Suka Bauri, (*m.*), 4; Niri Baurin, (*f.*), 1; Sundra Bauri, (*m.*), 6, *Not employed.*	Coal	Whilst the ten deceased were asleep in their houses a collapse of the underground workings took place. The surface subsided over an area, measuring 135′ × 85′, and the half of a coolie barrack, 160 feet in length, fell into the cavity. The deceased were killed by the falling masonry and roof of the barrack. Three of the bodies were not recovered. Inspection and inquiry made. *See Report, page 11.*
162	10th September, 9-30 A.M.	Byaukchoung Mine, Tavoy P. O., Burma.	Tavoy Concessions, Ld. .	Darni Singh, (*m.*), 34, *Coolie.*	Wolfram	Deceased was sitting at the bottom of an earth bank which was insufficiently sloped. About 3 tons of earth fell on to him from a height of about 7 feet and he was suffocated.
163	16th December, 3 A.M.	Sutikdih Mine, Bhujudih P. O., Bihar and Orissa.	Sutikdih Coal Co., Ld. .	Gaya Rai, (*m.*), 22, *Banksman.*	Coal	Deceased was sleeping beside a fire which he had made himself near a tram line. His clothes caught fire and he was burned succumbing to his injuries a fortnight later.

Fatal Accidents, 1915—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Reason for exclusion.	Cause of accident and remarks.
			DEATHS NOT INCLUDED IN THE STATISTICS.—(*27 deaths*).				
1	2nd January, 11 A.M.	Angarpatra Mine, Katrasgarh P. O., Bihar and Orissa.	National Coal Co., Ld.	Bandhia Bhuiani (*f.*), 30, *Coal cutter's kamin.*	Coal	Not a mining accident.	While deceased was cooking in her dhowra her clothes caught fire. She was burned and died the following day. Another woman was injured.
2	5th January, 5 P.M.	Kendwadih Mine, Jamadoba P. O., Bihar and Orissa.	Hariladih Coal Co., Ld.	Mangli Panka, (*f.*), 8.	Coal	Not employed	A tub was pushed into a tippler which was evidently turned over too forcibly, with the result that the tub fell out of the tippler and on to the wharf below on to deceased. She died an hour and-a-half afterwards from the effects of injuries received. Inspection and inquiry made.
3	11th January, 5 P.M.	Aldih Mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Ramlall Jeswara, (*m.*), 30, *Miner.*	Coal	Not a mining accident.	Deceased was making country powder into cartridges near an open fire in his hut, when the powder caught fire and exploded. He was severely burned and died from the effects two days later. Inspection and inquiry made.
4	17th January, About 6 P.M.	Banksimulla Mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ld.	Sukumoni Manjhian, (*f.*), 10.	Coal	Not employed	Deceased fell into a well while drawing water and was drowned. Inspection and inquiry made.
5	7th February, 7-30 A.M.	Angarpatra Mine, Katrasgarh P. O., Bihar and Orissa.	Angarpatra Colliery Co.	Sonia Bhuiani, (*f.*), 12.	Coal	Not employed	Deceased was drowned whilst taking water from an abandoned and waterlogged incline. She was subject to fits of epilepsy. The incline was fenced. Inspection and inquiry made.
6	14th February, 9 P.M.	Jairamdanga Mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Balia Manjhi, (*m.*), 40, *Miner.*	Coal	Not a mining accident.	Deceased in a condition of drunkenness set fire to the thatch of his house. He was severely burned and died ten days later. Inspection and inquiry made.
7	3rd March, Noon.	Pootki Mine, Kurkend P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Dasanawa, (*f.*), 18 months.	Coal	Not employed	Owing to the breaking of a buffer stop on a haulage slope, six tubs ran uncontrolled for a distance of 15 feet. Deceased, an infant, aged 18 months, whose parents worked in a gallery near by, was run over and killed on the spot. Inspection and inquiry made.
8	10th March, 4 P.M.	Sodepur 9 and 10 Pits Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Raghubir Dosadh, (*m.*), 4.	Coal	Not employed	Deceased stumbled into an open masonry drain, 12″ wide × 11″ deep, which was conveying boiler water from the boilers and was scalded so severely that he died next day. Inspection and inquiry made.
9	6th April, 4-45 P.M.	Chinchuria Mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Lakhan Kol, (*m.*), 8.	Coal	Not employed	Deceased appears to have been swept off his feet by a haulage rope, causing him to be thrown between the first and second tubs of a loaded set. He was killed on the spot. Inspection and inquiry made.

10	11th April, 7 P.M.	Chora Mine, Chora P. O., Bengal.	N. C. Sircar and Co.	Gopi Dosadh, (*m.*), 20, *Coolie;* Pabatia Dosadhin, (*f.*), 26, *Not employed.*	Coal	Not a mining accident.	The two deceased were very severely burned by burning oil being thrown upon them, through an explosion of a large tin miner's lamp. The male deceased died thirteen and the female seventeen days afterwards through heart failure consequent upon the injuries received. Inspection and inquiry made.
11	28th April, 10-30 A.M.	Barkui Mine, Pench P. O., Central Provinces.	Pench Valley Coal Co., Ld.	Binia, (*f.*), 3	Coal	Not employed	Deceased was playing on the edge of a large feed water tank when she fell in. No adult person was near and the child was dead when recovered. The tank was fenced.
12	3rd May, 4 P.M.	Sibpur Mine, Charanpur P. O., Bengal.	Katras Jharia Coal Co., Ld.	Gyadia Gowala, (*m.*), 26, *Miner.*	Coal	Not a mining accident.	Deceased accidentally ignited the contents of a canister of gunpowder and, in consequence, was slightly burned about the arms and legs. He died six days later in high fever, blood poisoning having supervened. Inspection and inquiry made.
13	26th May, 12-30 P.M.	Kodaigaon Mine, Sawner P. O., Central Provinces.	Indian Manganese Co., Ld.	Kasi, (*f.*), 2	Manganese	Not employed	Deceased was taken into the mine by its mother and its body was found in a pool of water, 3 feet wide by 3 feet deep. No official was in the mine at the time. Inspection and inquiry made.
14	4th June, 11-30 A.M.	Jamgram Mine, Panuria P. O., Bengal.	Barakar Coal Co., Ld.	Bhudu Bhuia, (*m.*), 3	Coal	Not employed	Deceased was washing at the overflow of a boiler tank while the feed water injector was in action. A sudden failure of the injector caused a volume of steam and hot water to be thrown upon the deceased, who was so severely scalded that he died four hours later. Inspection and inquiry made.
15	5th June, About noon.	Salanpur Mine, Salanpur P. O., Bengal.	B. S. Banerji	F. C. McDonald, (*m.*), 35.	Coal	Not employed	Deceased's body was found floating in an old incline. There was no direct evidence as to how he got there. He probably committed suicide whilst in a depressed state of mind. Inspection and inquiry made.
16	6th August, 7 A.M.	South-East Baraboni Mine, Charanpur P. O., Bengal.	The Hon'ble Maharaja Sir Manindra Chandra Nandi.	Haripada Bauri, (*m.*), 12.	Coal	Not employed	Deceased jumped or fell from the surface to the bottom of a shaft 125 feet in depth, and was killed instantly. The shaft top was protected by a masonry wall about 2' 6" high. Inspection and inquiry made.
17	12th August, 6 A.M.	Madhuband Mine, Nowagarh P. O., Bihar and Orissa.	Jumoni Coal Co., Ld.	Dakhni Kol, (*f.*), 12, *Coal carrier.*	Coal	Not a mining accident.	Whilst drawing water from a well the deceased overbalanced herself and fell in. Her body was recovered half an hour later. The well was fenced by a circular brick wall 3 feet high, spanned by two sleepers, on which persons stand whilst drawing water. Inspection and inquiry made.
18	9th September, 4 P.M.	Chungari Mine, Kashipur P. O., Bengal.	Raja of Panchkote	Dopi Bhuiani, (*f.*), 13.	Coal	Not employed	Deceased lost her balance on the top of an old unfenced waterlogged shaft and fell in and was drowned. Inspection and inquiry made.
19	16th September, 9-15 A.M.	New Khas Jharia, Jharia P. O., Bihar and Orissa.	Ramjus Agarwala	Laru Mondain, (*f.*), 50.	Coal	Not employed.	Deceased was run over by a loaded tub whilst crossing a surface tram line. She was old and deaf and failed to hear the warning shouts of the trammer. Her injuries were such that she died within a few hours. Inspection and inquiry made.
20	12th October, 9 A.M.	Dishargarh Mine, Dishargarh P. O., Bengal.	Equitable Coal Co., Ld.	Sona Kora, (*m.*), 40, *Miner.*	Coal	Not a mining accident.	Whilst of unsound mind, brought on by illness, deceased jumped into a well and was drowned. Inspection and inquiry made.

Fatal Accidents, 1915—*concld.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral worked.	Reason for exclusion.	Cause of accident and remarks.
			DEATHS NOT INCLUDED IN THE STATISTICS—*concld.*				
21	14th October, About 4 P.M.	Chanch Mine, Barakar P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Suti Manjhian, (*f.*), 20, *Coal-carrier*; Budhan Manjhi, (*m.*), 2, *Not employed.*	Coal	Not a mining accident.	The two deceased, who were mother and child, were found drowned in an old shaft. Inspection and inquiry made.
22	4th December, 2 P.M.	Baraboni Mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Lakheswar Hazra, (*m.*), 6.	Coal	Not employed	Deceased climbed the fence wall and fell into a feed water tank containing water 5′ 0″ deep and was drowned. Inspection and inquiry made.
23	16th December, 3 A.M.	Simlabahal Mine, Jharia P. O., Bihar and Orissa.	Bhalgora Coal Co., Ld.	Bhattu Bhuia, (*m.*), 50, *Coal cutter.*	Coal	Not a mining accident.	After filling two tubs in a well ventilated gallery in the mine, deceased, who was an old man, lay down to sleep in the gallery. Some hours later the sirdar found him dead. Death appears to have been due to natural causes. The *post-mortem* examination showed that he had suffered from lung trouble. Inspection and inquiry made.
24	20th December, Noon.	Charanpur Mine, Charanpur P. O., Bengal.	Apcar & Co.	Talu Manjhian, (*f.*), 3½.	Coal	Not employed	Deceased climbed the fence wall and fell into a feed water tank containing water 6′ 6″ deep and was drowned. Inspection and inquiry made.
25	Not known.	Tikuri Mine, Katni P. O., Central Provinces.	Katni Cement and Industrial Co., Ld.	Jograin Katchin, (*f.*), 30, *Labourer.*	Bauxite	Not employed	Deceased was found drowned in an abandoned incline.

APPENDIX II—*contd.*

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1915.

Province.	District and mineral field.	Total average number of persons employed daily.	Fatal accidents.				Serious accidents.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths.			Number of serious non-fatal accidents.	Number of persons seriously injured.					
				Below ground.	Above ground.	Total deaths.		Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
						A.—COAL.							
Assam	Lakhimpur	2,767	22	25	...	25	95	87	14	101	13·28	...	9·03
	Naga Hills	112	...	...	...	...	...	...	...	...	...	...	...
	Total	2,879	22	25	...	25	95	87	14	101	12·99	...	8·68
Baluchistan	Kalat	37	...	...	...	...	...	...	...	...	...	...	...
	Loralai, Loralai	23	...	...	...	...	...	...	...	...	...	...	...
	Quetta, Pishin	110	...	...	...	...	...	...	...	...	...	...	...
	Sibi, Khost, etc.	796	3	3	...	3	4	3	1	4	6·24	...	3·78
	Total	963	3	3	...	3	4	3	1	4	5·07	...	3·12
Bengal	Bankura, Raniganj	71	...	...	...	...	...	...	...	...	...	...	...
	Birbhum „	28	...	...	...	...	...	...	...	...	...	...	...
	Burdwan „	41,994	40	39	7	46	41	38	8	46	1·39	·50	1·10
	Total	42,093	40	39	7	46	41	38	8	46	1·38	·50	1·09
Bihar and Orissa	Hazaribagh, Bokaro-Ramgarh.	112	...	...	...	...	1	...	1	1	...	...	...
	Hazaribagh, Giridih	9,005	6	3	3	6	16	13	3	16	·47	1·12	·67
	Hazaribagh, Jharia	2,011	...	...	...	...	3	...	3	3	...	...	...
	Manbhum, Jharia	76,346	58	53	19	72	48	36	15	51	1·08	·69	·94
	„ Raniganj	5,006	3	3	...	3	7	5	2	7	·86	...	·60
	Palamau, Daltonganj	855	...	...	...	...	1	1	...	1	...	...	...
	Sambalpur, Hingir-Rampur	648	1	1	...	1	...	...	...	...	2·32	...	1·54
	Sonthal Parganas, Jainty	1,106	1	...	1	1	...	...	...	...	...	1·11	·90
	„ Raniganj	31	...	...	...	...	...	...	...	...	...	...	...
	Total	95,120	69	60	23	83	76	55	24	79	·97	·69	·87
Burma	Bhamo	16	...	...	...	...	...	...	...	...	...	...	...
Central Provinces	Chanda, Ballarpur	833	...	...	...	...	1	1	...	1	...	...	...
	Chhindwara, Pench Valley	1,118	1	1	...	1	4	3	1	4	1·22	...	·89
	Narsinghpur, Mohpani	1,220	2	2	...	2	3	1	2	3	2·49	...	1·64
	Yeotmal	13	...	...	...	...	...	...	...	...	...	...	...
	Total	3,184	3	3	...	3	8	5	3	8	1·38	...	·94
North-West Frontier Province.	Hazara	9	...	...	...	...	...	...	...	...	...	...	...
Panjab	Jhelum	1,022	5	3	3	6	1	1	...	1	4·48	8·52	5·87
	Mianwali	69	...	...	...	...	...	...	...	...	...	...	...
	Shahpur	182	...	...	...	...	...	...	...	...	...	...	...
	Total	1,273	5	3	3	6	1	1	...	1	3·50	6·28	4·71
	GRAND TOTAL (Coal)	145,537	143	133	33	166	225	189	50	239	1·39	·66	1·14

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1915—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
			B.—MICA.										
Bihar and Orissa	Gaya	1,286	1	1	...	1	1	1	...	1	1·22	...	·78
	Hazaribagh	6,104	4	3	1	4	...	...	...	...	·91	·36	·66
	Monghyr	205	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	7,595	5	4	1	5	1	1	...	1	·94	·30	·66
Madras	Nellore	2,911	...	...	...	...	1	1	...	1	...	...	...
	TOTAL	2,911	...	...	...	...	1	1	...	1	...	...	...
Rajputana	Ajmer	191	1	1	...	1	1	1	...	1	10·64	...	5·24
	Merwara	76	...	...	...	...	...	...	...	...	...	...	...
	Nasirabad	18	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	285	1	1	...	1	1	1	...	1	6·41	...	3·51
	GRAND TOTAL (MICA)	10,791	6	5	1	6	3	3	...	3	·77	·28	·56
			C.—MANGANESE.										
Bombay	Panch Mahals	970	...	...	...	...	...	...	...	...	...	...	...
Central Provinces	Balaghat	3,423	1	1	...	1	4	1	3	4	·39	...	·29
	Bhandara	1,371	...	...	...	...	...	...	...	...	...	...	...
	Chhindwara	964	1	1	...	1	2	...	2	2	1·16	...	1·04
	Jabalpur	26	...	...	...	...	...	...	...	...	...	...	...
	Nagpur	3,021	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	8,805	2	2	...	2	6	1	5	6	·30	...	·23
Madras	Vizagapatam	15	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (MANGANESE)	9,790	2	2	...	2	6	1	5	6	·27	...	·20
			D.—LIMESTONE.										
Central Provinces	Jabalpur-Katni	1,847	...	...	...	...	...	...	...	...	...	...	...
Panjab	Hoshiarpur	60	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (LIMESTONE)	1,907	...	...	...	...	...	...	...	...	...	...	...
			E.—SALT.										
Panjab	Jhelum	808	...	...	...	...	6	4	2	6	...	...	...
	Mianwali	77	...	...	...	...	...	...	...	...	...	...	...
	Shahpur	33	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (SALT)	918	...	...	...	...	6	4	2	6	...	...	...

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1915—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	Fatal accidents.				Serious accidents.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths.			Number of serious non-fatal accidents.	Number of persons seriously injured.					
				Below ground.	Above ground.	Total deaths.		Below ground.	Above ground.	Total number of injured.	Below ground.	Above ground.	Below and above ground.
			F.—GEMS.										
Burma	Mogok (Rubies, etc.)	972	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Gems)	972	...	...	...	...	...	...	...	...	...	...	...
			G.—SLATE.										
Bihar and Orissa	Monghyr	282	...	...	...	...	2	...	2	2	...	...	...
Panjab	Gurdaspur	1	...	...	...	...	...	...	...	...	...	...	...
	Gurgaon	213	...	...	...	...	...	...	...	...	...	...	...
	Kangra	355	...	...	...	...	...	...	...	...	...	...	...
	Total	569	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Slate)	851	...	...	...	...	2	...	2	2	...	...	...
			H.—GOLD.										
Bihar and Orissa	Singhbhum	138	...	...	...	...	...	...	...	...	...	...	...
Madras	Anantapur	2,025	5	5	...	5	7	4	3	7	5·57	...	2·47
	GRAND TOTAL (Gold)	2,163	5	5	...	5	7	4	3	7	4·97	...	2·31
			I.—IRON.										
Bihar and Orissa	Puri	70	...	...	...	...	...	...	...	...	...	...	...
	Singhbhum	841	...	...	...	...	1	...	1	1	...	...	...
	Total	911	...	...	...	...	1	...	1	1	...	...	...
Central Provinces	Chanda	60	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Iron)	971	...	...	...	...	1	...	1	1	...	...	...
			J.—WOLFRAM.										
Burma	Tavoy	3,187	5	4	2	6	1	...	1	1	2·30	1·38	1·88
	GRAND TOTAL (Wolfram).	3,187	5	4	2	6	1	...	1	1	2·30	1·38	1·88
			K.—MAGNESITE.										
Madras	Salem	602	...	...	...	...	2	...	2	2	...	...	...
			L.—CHROMITE.										
Baluchistan	Quetta-Pishin	8	...	...	...	...	...	...	...	...	...	...	...
	Zhob	77	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Chromite)	85	...	...	...	...	...	...	...	...	...	...	...

APPENDIX II—*contd.*

Table No. 2—*concld.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1915—*concld.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				DEATH-RATE PER 1,000 PERSONS EMPLOYED.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
		M.—COPPER ORE.											
Bihar and Orissa	Singhbhum	1,424	1	1	...	1	2	1	1	2	2·25	...	·70
Burma	Kathe	25	...	...	...	...	...	...	...	...	...	...	...
	Kyaukse	81	1	1	...	1	3	2	1	3	23·26	...	12·35
	Lower Chindwin	316	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	422	1	1	...	1	3	2	1	3	3·72	...	2·37
	GRAND TOTAL (COPPER)	1,846	2	2	...	2	5	3	2	5	2·80	...	1·08
		N.—BAUXITE.											
Central Provinces	Jabalpur	41	...	...	...	...	...	...	...	...	...	...	...
		O.—CLAY.											
Bihar and Orissa	Manbhum	65	...	...	...	...	...	...	...	...	...	...	...
	Palamau	29	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	94	...	...	...	...	...	...	...	...	...	...	...
Central Provinces	Jabalpur	250	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (CLAY)	344	...	...	...	...	...	...	...	...	...	...	...
		P.—GALENA.											
Central Provinces	Drug	37	...	...	...	...	...	...	...	...	...	...	..
		Q.—TIN.											
Bihar and Orissa	Hazaribagh	7	...	...	...	...	...	...	...	...	...	...	...
Burma	Mergui (Maliwan)	27	1	...	1	1	...	...	...	...	...	0·00	37·04
	Tavoy	*	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (TIN)	34	1	...	1	1	...	...	...	...	...	0·00	26·47
		R.—STEATITE.											
Madras	Kurnool	12	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (STEATITE)	12	...	...	...	...	...	...	...	...	...	...	...
		S.—FULLER'S EARTH.											
Central Provinces	Jabalpur	§	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (ALL MINERALS)	180,088	163	151	37	188	258	204	68	272	1·28	·60	1·04

* Figures included with those of Tavoy wolfram.

§ Figures included with those of Jabalpur limestone.

APPENDIX II—*contd.*

Table No. 3.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1915, classified according to the age and sex of the workers.

Mineral.	Province and mineral field.	Number of separate fatal accidents.	Number of deaths.								Total below and above ground.
			Below ground.				Above ground.				
			Adult males.	Adult females.	Children (under 13).	Total.	Adult males.	Adult females.	Children (under 13).	Total.	
Coal	Assam, Lakhimpur	22	22	3	...	25	...	...	...	...	25
	Baluchistan, Sibi	3	3	...	...	3	...	...	...	...	3
	Bengal, Raniganj	40	29	9	1	39	7	...	...	7	46
	Bihar and Orissa. Giridih	6	3	...	...	3	3	...	...	3	6
	Bihar and Orissa. Jainty	1	...	...	...	...	1	...	...	1	1
	Bihar and Orissa. Jharia	58	43	10	...	53	10	4	5	19	72
	Bihar and Orissa. Manbhum, Raniganj	3	1	2	...	3	...	...	...	...	3
	Bihar and Orissa. Sambalpur, Hingir Rampur.	1	1	...	...	1	...	...	...	...	1
	Total Bihar and Orissa	69	48	12	...	60	14	4	5	23	83
	Central Provinces. Chhindwara	1	1	...	...	1	...	...	...	...	1
	Central Provinces. Narsinghpur	2	...	2	...	2	...	...	...	...	2
	Total Central Provinces	3	1	2	...	3	...	...	...	...	3
	Panjab, Jhelum	5	3	...	...	3	3	...	...	3	6
	Total Coal	142	106	26	1	133	24	4	5	33	166
Mica	Bihar and Orissa. Gaya	1	1	...	...	1	...	...	...	...	1
	Bihar and Orissa. Hazaribagh	4	3	...	...	3	1	...	...	1	4
	Total Bihar and Orissa	5	4	...	...	4	1	...	...	1	5
	Rajputana, Ajmer	1	1	...	...	1	...	...	...	...	1
	Total Mica	6	5	...	...	5	1	...	...	1	6
Manganese	Central Provinces. Balaghat	1	1	...	...	1	...	...	...	...	1
	Central Provinces. Chhindwara	1	...	1	...	1	...	...	...	...	1
	Total Central Provinces	2	1	1	...	2	...	...	...	...	2
Gold	Madras, Anantapur	5	5	...	...	5	...	...	...	...	5
Wolfram	Burma, Tavoy	5	4	...	...	4	2	...	...	2	6
Copper	Bihar and Orissa, Singhbhum	1	1	...	...	1	...	...	...	...	1
	Burma, Kyaukse	1	1	...	...	1	...	...	...	...	1
	Total Copper	2	2	...	...	2	...	...	...	...	2
Tin	Burma, Mergui	1	...	...	...	...	1	...	...	1	1
Grand total (all minerals)		168	123	27	1	151	28	4	5	37	188

APPENDIX II—*concld.*

Table No. 4.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1915, classified according to cause of accident.

Mineral worked.	Number of separate fatal accidents.	Number of persons killed.											Death-rate per 1,000 persons employed.		
		Explosions of fire-damp.	Falls of roof.	Falls of side.	In shafts.	Suffocation by gases.	By explosives.	Irruptions of water or falling into water.	Haulage.	Miscellaneous below ground.	Surface.	Total deaths.	Below ground.	Above ground.	Below and above ground.
Coal	142	1	49	36	15	...	3	2	16	11	33	166	1·39	·66	1·14
Manganese	2	...	...	...	...	...	...	1	...	1	...	2	·27	...	·20
Mica	6	...	1	2	...	...	1	...	1	...	1	6	·77	·23	·56
Gold	5	...	...	...	2	...	2	...	...	1	...	5	4·97	...	2·31
Wolfram	5	...	...	4	...	...	...	...	...	...	2	6	2·30	1·38	1·88
Copper	2	...	1	...	...	...	1	...	...	...	...	2	2·80	...	1·08
Tin	1	...	...	...	...	...	...	...	...	...	1	1	...	0·00	26·47
Total 1915	163	1	51	42	17	...	7	3	17	13	37	188	1·28	·60	1·04
Total preceding year.	152	1	48	47	22	1	16	8	21	10	17	191	1·45	·26	1·03
Difference	+11	...	+3	−5	−5	−1	−9	−5	−4	+3	+20	−3	−·17	+·34	+·01

APPENDIX III.

PROSECUTIONS UNDER THE MINES ACT.

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1915.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bihar and Orissa	Manbhum	1	1	1	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	Proceedings instituted during 191[illegible] but case tried in 1915.
	Do.	1	2	1	Section 20, Rules 2 (*g*), 7 and 8 of Notification No. 864-68—20, dated 10th March 1914.	Do.
	Do.	1	1	1	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	Do.
Bengal	Burdwan	1	1	1	Section 20, Rule 19 of Notification No. 864-68—20, dated 10th March 1904, and Rule 8 of Notification No. 11793—103, dated 30th December 1908.	Do.
	Do.	1	1	1	Section 20, Rule 2 of Notification No. 11793—103, dated 30th December 1908.	
Central Provinces	Chhindwara	1	1	1	Section 20, Rule 24 of Notification No. 864-68—20, dated 10th March 1904.	
Bengal	Burdwan	1	1	1	Indian Mines Act, 1901, Section 13 (1).	
Bihar and Orissa	Manbhum	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
	Do.	1	1	1	Ditto ditto.	
Bengal	Burdwan	1	1	1	Section 20, Rule 19 of Notification No. 864-68—20, dated 10th March 1904.	
Bihar and Orissa	Manbhum	1	1	..	Section 20, Rule 2 of Notification No. 11793—103, dated 30th December 1908.	Time-barred.
Madras	Nellore	1	1	...	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	Withdrawn.
Bihar and Orissa	Manbhum	1	1	...	Section 20, Rule 19 of Notification No. 864-68—20, dated 10th March 1904.	Proceedings dropped.
	Do.	1	1	...	Ditto ditto	Do.
Bengal	Burdwan	1	1	1	Section 20, Rules 2 (*g*) and 4 (*b*) of Notification No. 864-68-20, dated 10th March 1904.	
Bihar and Orissa	Hazaribagh	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
Bengal	Burdwan	1	1	1	Section 20, Rule 1 of Notification No. 864-68—20, dated 10th March 1904.	

APPENDIX III—*concld.*

PROSECUTIONS UNDER THE MINES ACT—*concld.*

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1915.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bihar and Orissa	Manbhum	1	1	1	Indian Mines Act, 1901, Section 13 (1) and Section 20, Rule 45 of Notification No. 2968—82, dated 21st April 1906.	
	Do.	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
	Do.	1	1	1	Ditto ditto.	
Bengal	Burdwan	1	1	1	Ditto ditto.	
Bihar and Orissa	Manbhum	1	1	1	Ditto ditto.	
	Do.	4	4	4	Section 20, Rules 3, 9 and 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Indian Mines Act, 1901, Section 13 (1).	
	Do.	1	1	1	Section 20, Rule 2 of Notification No. 11793—103, dated 30th December 1908, and Rule 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rules 3, 7 and 19 of Notification No. 864-68—20, dated 10th March 1904.	
Bengal	Burdwan	1	1	...	Section 20, Rule 1 (*a*) of Notification No. 864-68—20, dated 10th March 1904, and Rule 50 of Notification No. 2968—82, dated 21st April 1906.	Not tried in 1915.

APPENDIX IV.

MISCELLANEOUS.

Statement No. 1.

List of Inspection Circles.

No. 1 Circle.	No. 2 Circle.	No. 3 Circle.
(a) All mines in the district of Manbhum, which are situated west of a line drawn from Adra Junction at mile 175 of the Bengal-Nagpur Railway to Gobindpur at mile 169 on the Grand Trunk Road and continued across the district in each direction, and all mines in the district of Palamau.	(a) All mines in the districts of Burdwan and Bankura to the west of a line drawn from mile 131 on the East Indian Railway main line near Asansol to mile 141 on the Ondal loop near Gaurangdi, and continued across the districts in each direction; and all mines in the district of Manbhum east of a line drawn from Adra Junction at mile 175 on the Bengal-Nagpur Railway to Gobindpur at mile 169 on the Grand Trunk Road, and continued across the district in each direction, and all mines in the districts of Hazaribagh, Gaya, Monghyr, Darjeeling and Ranchi.	(a) All mines in the districts of Burdwan and Bankura to the east of a line drawn from mile 131 on the East Indian Railway main line near Asansol to mile 141 on the Ondal loop near Gaurangdi, and continued across the districts in each direction, and all mines in the districts of the Southal Parganas, Birbhum, Singhbhum and Sambalpur.
(b) All mines in Assam . .	(b) All mines in Baluchistan . .	(b) All mines in the Presidency of Bombay.
(c) All mines in Burma . .	(c) All mines in the United Provinces	(c) All mines in the Central Provinces.
	(d) All mines in the Panjab . .	(d) All mines in the Presidency of Madras.
	(e) All mines in Ajmer-Merwara.	

Statement No. 2.

List of holders of certificates as managers of coal mines in British India.

(a) Certificates granted to holders of English certificates of competency.

FIRST CLASS.

NAME.	No. of Indian certificate.	Date of Indian certificate.	No. of English certificate.	Date of English certificate.
Rigg, John Wilson . . .	190	4th March 1915 . .	3506	30th December 1909.
Loudon, James	191	Ditto . .	2443	8th June 1904.
Jack, George S. . . .	192	Ditto . .	3737	22nd December 1910.
Beckett, Willis	193	Ditto . .	3478	22nd July 1909.
Thomas, Thomas John . .	194	Ditto . .	3724	14th October 1910.
Taylor, William Alexander . .	195	Ditto . .	3639	9th June 1910.
Buchanan, James . . .	196	Ditto . .	3803	13th June 1911.
Bell, John Valentine . . .	197	Ditto . .	3768	1st March 1911.
Dickinson, William . . .	198	Ditto . .	3773	1st March 1911.
Angus, William	199	17th March 1915 . .	3798	13th June 1911.
Thornton, James Brownlee . .	200	Ditto . .	3848	13th June 1911.
Tallack, Charles Cragoe . .	201	10th April 1915 . .	103	2nd February 1914.
Oswald, Ernest William . .	202	11th December 1915 .	222	22nd July 1915.
Langley, Elijah	203	Ditto . .	3061	31st December 1907.
Burgoyne, George Ormerod . .	204	Ditto . .	2844	2nd July 1906.

SECOND CLASS.

Hunter, George	22	11th December 1915 .	3154	16th June 1897.
Edwards, David Lewis . .	23	Ditto . .	7013	2nd July 1909.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 2—*concld.*

List of holders of certificates as managers of coal mines in British India—*concld.*

(*b*) Certificates of Competency.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Das, Debendra Nath	78	10th April 1915.	
Knyvett, Godfrey Denzil	79	Ditto.	
White, Edward Beadon Deveria . .	80	Ditto.	
Mukherji, Dinesh Chandra . . .	81	Ditto.	
Power, Clarence Eustace	82	Ditto.	

SECOND CLASS.

Nag, Hemanta Kumar	110	10th April 1915.	
Lawton, Henry	111	Ditto.	
O'Reilly, Denis Edward	112	Ditto.	
Penfold, Douglas Kent	113	Ditto.	
Campbell, Archibald	114	Ditto.	
Naravane, Shankar Govind . . .	115	Ditto.	
Kolya, Narayan Chandra	116	Ditto.	
Mukherji, Keshob Chandra . . .	117	Ditto.	

(*c*) Certificate of Service.

FIRST CLASS.

Robertson, Ivanhoe George Chersley . .	138	10th March 1915.	

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 3.

List of Universities and Colleges approved by the Governor-General in Council for the purposes of Rules 32 and 33 under the Indian Mines Act, 1901.

Name of Institution and Degree or Diploma.	Date.
University of Birmingham in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	11th June 1904.
University College of Bristol in respect of its Senior Diploma in Mining.	16th September 1904.
University of Cambridge in respect of its Diploma in Mining Engineering.	6th June 1905.
University of Durham in respect of its Degree of B.Sc. in Mining	21st December 1903.
Durham College of Science in respect of its Diploma in Mining .	29th June 1904.
University of Glasgow in respect of its Degree and Diploma in Mining.	28th September 1904.
Glasgow and West of Scotland Technical College in respect of its Diploma in Mining.	28th June 1904.
University of Leeds in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	21st November 1904.
University of London in respect of its B.Sc. Degree in Mining for Internal Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	9th June 1905.
University of London in respect of its B.Sc. Degree in Mining for External Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	7th August 1906.
Royal School of Mines in respect of its Associateship in Mining .	24th March 1904.
University of Oxford in respect of its Diploma B. for Colliery Engineers (in Scientific Engineering and Mining subjects).	11th February 1905.
University College of Sheffield in respect of its Diploma in Mining.	15th July 1904.
University College of South Wales and Monmouthshire in respect of its Diploma in Mining.	19th April 1904.
Wigan Mining and Technical College in respect of its Diploma in Mining.	26th August 1904.
Civil Engineering College, Sibpur, in respect of its Diploma in Mining.	22nd February 1907.
Merchant Venturers' Technical College, Bristol, in respect of its Diploma in Mining Engineering.	5th October 1905.
Victoria University of Manchester in respect of its Degree and Certificate of Mining.	14th February 1906.
University College of Nottingham in respect of its Diploma in Mining Engineering.	28th March 1906.
University of Sheffield in respect of its Degree of Bachelor of Engineering (Mining).	30th June 1906.
Heriot-Watt College in respect of its Certificate in Mining Engineering.	16th January 1908.
Calcutta University in respect of its Degree of Bachelor of Engineering in the branch of Mining Engineering.	24th September 1910.
Harvard University, Cambridge, Massachusetts, in respect of its Diploma in Mining Engineering.	22nd February 1913
Columbia University, New York, in respect of its Degree of Engineer of Mines.	18th March 1915

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 4.

SIBPUR COLLEGE.

THE MINING CLASSES.

CIRCULAR.

(*All students must be resident.*)

A course for the Diploma in the "Principles of Mining" is offered.

Arrangement of Classes.

First year.—Admissions about the end of January to the preliminary year, in which Mechanical, Electrical and Mining students are taught together.

Second year.—Promotion in April to the Junior Mining Class. Civil Engineering students who pass the Sub-Overseer examination are also admitted at this stage.

Third year.—Promotion in April to the Senior Mining Class. The examination for the Diploma in Mining is held at the end of this year.

(The possession of a certificate gives the holder no claim to any appointment under Government.)

The Mining Course.—This course covers three years (all at the College), preparing students for the examination for the Government Diploma in the "Principles of Mining." The first or preliminary year is common to the course in Mechanical and Electrical Engineering. Specialized instruction in Mining is offered only in the last two years. Students spend six weeks each year in learning practical Mine Surveying and in visiting collieries.

The courses of instruction are designed to afford theoretical training in the Principles of Mining generally, to prepare students for positions of responsibility in coal or metal mines, and in the case of students attending for instruction in coal-mining, to qualify them to appear at the examinations for mine managers as required by the Indian Mines Act. Students who obtain the College Diploma may be granted a reduction by two years in the qualifying period of practical work in a coal mine required of candidates for a colliery manager's certificate.

Admission to the Mechanical and Electrical Engineering and Mining Courses.—Admission to the first or preliminary year of the Mechanical and Electrical Engineering and Mining Courses is made at the end of January. Candidates must be qualified, as laid down above, for admission to the first year of the Sub-Overseer classes (B. Final certificate-holders are admitted only to the first or preliminary year of the Mechanical and Electrical and Mining Courses).

Applications must be received at the Principal's office by the 16th January.

Admission to advanced standing.—Students who have passed the Sub-Overseer examination may be admitted in April to the junior year of the Mining or the Mechanical and Electrical Engineering Courses, thus qualifying for admission to the final examination in those branches on the expiry of two years.

Age.—No limits of age are laid down for admission to the Mining and Mechanical and Electrical Engineering Courses.

Admission of special students to the Mining classes.—Provided there is room, persons who have completed at least two years' practical work upon a mine may be admitted direct to the junior year of the Mining Course as special students, irrespective of age, provided that their general education is such as to enable them to follow the course with profit. They must apply for admission before 1st March, producing statements from the managers under whom they have served, showing the nature of their employment and period.

Two places in the Mechanical and Electrical Engineering and two places in the Mining Courses are reserved for students from Bihar and Orissa.

The total number of admissions to the above courses in Civil and Mechanical and Electrical Engineering and Mining is limited to 60; preference is given to admissions to the junior years of the Upper Subordinate, the Mechanical and Electrical Engineering and Mining Courses and to the second year of the Sub-Overseer Courses. The number admitted to the Civil and Mechanical and Electrical and Mining Branches is regulated by the Principal, so that the total number in any combined class does not exceed 60, nor in any special branch shall it exceed 40.

In determining the age of candidates for admission, for Indian students the statement recorded in the school registers on their first joining any school is the only evidence of their age accepted. European students must produce their baptismal certificates.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 4—*contd.*

Medical Examination.

Every applicant must before admission present himself before the Medical Officer resident at the College for examination as to his eyesight, physical strength and fitness for manual labour. In the case of those resident at a distance, a Civil Surgeon's certificate will be accepted. Candidates not protected by vaccination must be vaccinated before admission.

Commencement of Session.

The second-year Sub-Overseer and the junior-year sessions of all courses commence in April as soon as possible after the B. Final or Sub-Overseer examination results are announced.

The first-year session commences on the first Monday in May.

Any student unable to join the College on the date mentioned in his admission letter must send by that date Rs. 9 of the first instalment of fees in order to secure his seat; failing this, another student will be admitted in his place. He must also bring with him, when he joins, a medical certificate from a Civil or Assistant Surgeon testifying his inability to join on the proper date, failing which he will be liable to a fine of Rs. 10.

Vacation.

The College will be closed for the long vacation from about the middle of August to the first Monday in November. No student may remain at the College during this period, except such as may be detained on duty by the Principal.

Residential arrangements.

All students must be resident.

There are separate furnished boarding arrangements for Europeans, Muhammadans and Hindus. Messes are maintained for Europeans and Hindus, Muhammadans make their own messing arrangements.

In the case of Muhammadans, on account of the greater cost of living at the College owing to the small number of Muhammadan students, Government maintain a cook and one other servant, and pay a stipend to each Muhammadan student varying from Rs. 6 to Re. 1 a month according as there may be one or sixteen resident Muhammadans.

College Dues.

Initial—

	Rs.	
Entrance fee, mess	2	Non-returnable.
Entrance fee, athletic club	1	Non-returnable.
Caution-money deposit	5	Balance returnable if applied for within three years after paying College dues.

Monthly—

Tuition	3	Payable for each month of the year.
Electric light	1	Payable for ten months of the year.
Board (session) 9½ months	...	Europeans, Rs. 25; Hindus, Rs. 11.
„ (vacation) 2½ „	...	Europeans, Rs. 2; Hindus, Re. 1.
Athletic club	1	in March, June and November.

Free studentships.—A total number of five free studentships for all branches in the Apprentice Department are available for European students.

Reduced feeships.—A total number of 25 reduced feeships for all branches of the Apprentice Department are available for Europeans. These reduce the fees to Rs. 5 for messing payable for 12 months in addition to the electric light and athletic club fees.

A total number of 40 reduced feeships are available for Indians. These reduce the fees to Rs. 2 for messing payable for twelve months in addition to the electric light and athletic club fees.

Note.—Free and reduced feeships apply only to students whose parents or guardians reside within the limits of the jurisdiction of the Governor of Bengal, but the sons of employés of the East Indian Railway, Bengal-Nagpur Railway or Eastern Bengal State Railway, of soldiers serving in India, of Survey, Telegraph and other Government officers who are liable to employment in Bengal, or pensioners who, when on active service, were liable to be so employed, are eligible for election.

Forms of application for the reduced feeships are available in the Principal's office.

These free and reduced feeships are awarded by the Board of Visitors after the commencement of the session from among students who have joined.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 4—*contd.*

SCHOLARSHIPS AND STIPENDS.

TENABLE IN JUNIOR AND SENIOR YEARS OF MINING COURSE FOR REGULAR STUDENTS RESIDENT IN BENGAL.

	Rs.	
Two scholarships of	12	Carrying exemption from tuition fee unless the holder is also on the Reduced Fee List.
Three „ „	6	

FOR SPECIAL STUDENTS.

Europeans.	Two Scholarships of	50	Awarded on the result of the sessional examination of students attending evening classes in mining in instruction in the coalfield.
Indians	„ „ „	25	

SYLLABUS OF MINING COURSES.

COURSE I.

Geology applied to mining.—(One lecture per week.)

Classification of rocks: characteristic fossils and economic products of the principal systems.

Structure of rock; foldings, faults, cleavage, formation of mineral veins.

Principles of geological surveying: methods employed in constructing geological maps and sections. Special reference to the geology of India.

Mining Engineering.—(Two lectures per week.)

Boring by hand and power machines.

Sinking and lining shafts; various methods employed in special cases.

Systems of haulage, underground and aboveground, aerial ropeways.

Hoisting, head-gear, ropes, safety appliances.

Mining legislation.

Section A.—(One lecture per week.)

Methods of working coal, shafts, pillars, preliminary work, and various methods of working the seams. Special reference to thick coal working as practised in England and different parts of the world.

Shot-firing; coal-cutting by machinery.

Surface subsidence and under-sea working.

Timbering and other supports.

Coal mine plans and sections, connecting surface and underground surveys.

Section B.—(One lecture per week.)

Prospecting for and methods of working mineral veins.

Alluvial mining and open workings.

Hydraulic mining; dredging for gold; ore-beds and deep leads, overhand and underhand stopping.

Hand and power drilling; blasting, timbering.

Metal mine plans.

COURSE II.

Descriptive Mineralogy.—(One lecture per week.)

Physical properties of minerals; description of various ores and fuels; methods of determination.

Prospecting operations.

Mining Engineering.—(Two lectures per week during first-half of session.)

Drainage of mines; adits, levels; pumping machinery; dams; boring against old workings.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 4—*concld.*

Ventilation of mines; natural and artificial ventilation; splitting and regulating air currents; types of fans; water-gauge and anemometer.

Power-application in a mine; discussion of relative merits of steam, water, compressed air, electricity and oil, as sources of applied power.

Section A.—(One lecture per week).

Description of gases found in coal mines; colliery explosions; safety lamps; instruments for detecting fire-damp; treatment of men overcome by foul air.

Arrangement of surface works at a colliery; sorting and screening coals; coal-washing, briquette making, coking and bye-products.

Section B.—(One lecture per week).

Surface works of metal mines, sorting, crushing, sizing and concentration of various ores.

Modern ore-dressing machinery and slime tables.

Special reference to treatment of gold, silver, copper, and zinc.

Cyanide and Cholorine treatment of slimes.

Statement No. 5.

MINING INSTRUCTION IN BENGAL AND BIHAR AND ORISSA.

[*The Mining Educational Advisory Board desire that Colliery Managers will kindly publish this information in their collieries. An appeal is also made to them to support the lectures by seeing that members of their colliery staff, who are suitable, take advantage of the lectures and attend them regularly.*]

RANIGANJ AND JHARIA COALFIELDS.

Lectures will be delivered throughout the session at the following centres :—

Place and days.	*Lecturer and Secretary.*
(1) Lecture-room near Sijua station, on Tuesdays.	Mr. H. C. Read.
(2) Lecture-room near the Jharia Club, on Mondays.	
(3) Lecture-room at Messrs. Apcar and Company's Charanpur Colliery, on Fridays.	
(4) Lecture-room near Dishargarh Club, on Wednesdays.	
(5) Railway Institute, Raniganj, on Thursdays.	

The course of instruction, consisting of not less than 30 lectures, will commence the first week in September and end in the following April. An examination will be held in April 1916, and candidates who pass the examination will receive a certificate recording their success. No candidate will, however, be permitted to sit for the examination unless he has attended 50 per cent. of the lectures and received 40 per cent. of the marks allotted for home work.

All Europeans and English-speaking Indians are cordially invited to attend.

The following Sub-Committees have been appointed for each centre :—

RANIGANJ DISTRICT.

Dishargarh Centre.	*Charanpur Centre.*	*Raniganj Centre.*
Mr. G. C. Leach, *Chairman.*	Mr. G. C. Leach, *Chairman.*	Mr. G. C. Leach, *Chairman.*
„ Glen George.	„ T. Samson.	„ P. S. Keelan.
„ Geo. Miller.	„ R. Mitchell.	„ J. Mackintosh.
„ F. Owen.	„ E. M. Patterson.	„ W. J. Rees.
Babu M. N. Roy (Begunia).	„ A. Russell.	Babu Promotho Nath Hazra.
„ P. C. Tarafdar.	Babu Rajani Prokash Chakravarti.	„ Bejoy Krishna Banerji.
„ Hari Pada Mukherji.	„ Atul Shashi Mitra.	

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 5—*contd.*

JHARIA DISTRICT.

Jharia Centre.	*Sijua Centre.*
Mr. R. R. Simpson, *Chairman.*	Mr. R. R. Simpson, *Chairman.*
„ R. G. M. Bathgate.	„ A. A. Agabeg.
„ J. S. Kean.	„ E. S. Bennertz.
„ A. S. Thomson.	„ B. Starksfield.
Babu Sita Nath Dutta.	Babu Purshotan Bhimji Relia.
„ Gobhurdban Dass Manishankar.	

SYLLABUS OF THE COURSE OF INSTRUCTION.

The course will treat principally of the more practical operations in actual mining, **with special reference to India,** and the principles underlying such operations will be thoroughly discussed. Special attention will be paid to the various methods of working thick seams. Sketches illustrating the lectures will be distributed free of charge.

At the close of each lecture questions will be set for home work.

FIRST-YEAR COURSE.

1. *Geology.*—General structure of the crust of the earth; descriptions of fault, dykes, outcrop, dip, strike, unconformity, etc.; composition and properties of coal; special reference to the coal measures in India; importance of recording results of observations.

2. *Exploration.*—Advantages of borings; driving through faults, washouts, dykes, methods of maintaining the direction and gradient of such drivages.

3. *Boring and winning.*—Different systems of borings; choice of methods; cost of boring; winning coal by inclines, adits, shafts and cross-cut.

4. *Sinking.*—Site of colliery; position of shafts, excavation and shape; blasting with use of safety fuse and electric battery; explosives and detonators, their safe storing and handling; sinking and how to deal with difficulties: apparatus and tools used; lining shafts and scaffolding; pitbanking arrangements.

5. *Opening out and methods of working, surveying.*—Shafts; pillars; arching or supporting the pit bottom; quarrying; pillar and stall; double road stall; long wall; panel systems.

6. *Timbering and supporting.*—Fixing of props and double timber, chocks or cogs; special methods of timbering to withstand pressure from the roof sides and floor; securing dangerous holes in the roof due to heavy falls; use of iron or steel girders; stowing and packing; arching.

7. *Gases met with in coal mines.*—Their experimental preparation by chemicals, and illustration of their physical and physiological properties; methods of detecting; explosion and gob fires.

8. *Ventilation.*—Natural and artificial methods; coursing the air; use of stoppings, brattices, doors, air bridges, regulators; measuring the quantity of air, use of thermometer, barometer; water-gauge, anemometer; the friction of air in mines and the elementary theory of splitting.

9. *Safety lamps.*—Theory of safety lamps, Sir Humphrey Davy's experiment; the Davy lamp, the Clanny and Thomas and Williams lamps, the Marsuat and Mueseler lamps, fire-damp detectors.

SECOND-YEAR COURSE.

1. *Mechanical Engineering of collieries.*—Winding engines, discussion of the different types, calculation of the dimensions of cylinders, length of stroke, diameter of drum, etc.; strength of winding ropes and chains, detaching hooks, capping winding ropes, care and examination of ropes.

2. *Pumping.*—Importance of a good system; measurement of quantities of water; lifting and forcing pumps; pumps for sinking; temporary and permanent pumps; calculation of dimensions of pumps to perform a given duty, strength of pipes, methods of supporting; different types of joints.

APPENDIX IV—*contd.*

MISCELLANEOUS.

Statement No. 5—*concld.*

3. *Hauling.*—Tramways, tubs and waggons; conveyance by self-acting inclines; single-rope haulage; main and tail; endless rope; endless chain; calculation concerning inclines, sizes of haulage engines, ropes, etc.; signalling; capping of haulage ropes.

4. *Methods of working and ventilation.*—Revision of first-year course work, followed by a fuller treatment of these subjects.

5. *Surface arrangements.*—Boilers; Cornish, Lancashire, and water-tube types; boiler fittings, injectors, and steam-pipes, etc.; boiler explosions, incrustation, corrosion and priming; calculations of boilers. Heap steads; arrangement of roads around pit bank; simple screening and sizing.

6. *Transmission of power.*—By steam, compressed air and electricity, discussing the relative merits of each system.

Text-books recommended.—Peel's or Kerr's Elementary Mining; O'Donoghue's Mining Arithmetic.

W. H. EVERETT,

(Officiating Superintendent of Industries, etc.),
Secretary to the Mining Educational Advisory Board,
Writers' Buildings, Calcutta.

WRITERS' BUILDINGS,

Calcutta, the 19th August 1915.

Statement No. 6.

No. 15874—62.

DEPARTMENT OF COMMERCE AND INDUSTRY.

NOTIFICATION.

GEOLOGY AND MINERALS.

Simla, the 16th October 1915.

In exercise of the power conferred by Section 20 of the Indian Mines Act, 1901 (VIII of 1901), the Governor-General in Council is pleased to direct that in the rules regarding certificates of mine managers issued with Notification No. 2968—82 (Geology and Minerals), dated the 21st April 1906, the following amendments shall be made, namely:—

The words "One of these persons shall be the owner or manager of the mine, the other shall be a mining engineer" in Rule 28 shall be cancelled.

S. H. SLATER,

for *Secretary to the Government of India.*

No. 15875—62.

A copy is forwarded to all Local Governments and Administrations, except the Chief Commissioner of Delhi.

A copy is also forwarded to the Railway Department, the Director, Geological Survey of India, the Chief Inspector of Mines in India, and the Secretary, Indian Mining Association.

By order, etc.,

E. P. JONES,

for *Under-Secretary to the Government of India.*

APPENDIX IV—*concld.*

MISCELLANEOUS.

Statement No. 7.

LAND ACQUISITION (MINES) ACT, 1885.

Particulars required to be furnished by colliery owners to Local Governments when giving notice under Section IV of the Land Acquisition (Mines) Act, 1885, of their intention to work coal under land acquired for a railway:—

(*a*) The name, residence and profession of the person giving the notice.

(*b*) The name of the mine, together with that of the village and district in which the mine is situate.

(*c*) The name of the railway line or of the siding and the main line to which the siding is attached, under which the mine is situate.

(*d*) The names of the railway stations and the mileage between which the said siding or the said portion of the railway land, under which the mine is situate, falls.

(*e*) The number and date of the declaration under which the land was acquired.

(*f*) A tracing, showing the boundaries of, and the area over which, the acquired land extends.

CALCUTTA: PRINTED BY THE SUPDT. GOVT. PRINTING INDIA, 8, HASTINGS STREET.

Department of Mines, India

REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA

Under the Indian Mines Act (VIII of 1901)

FOR THE

YEAR ENDING 31st DECEMBER

1916

BY

G. F. ADAMS, M. Inst. C. E.
Chief Inspector of Mines in India

CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA
1917.

Agents for the Sale of Books Published by the Superintendent of Government Printing, India, Calcutta.

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Manager, Newal Kishore Press, Lucknow.*

* Agents for the sale of Legislative Department publications only.

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FROM

G. F. ADAMS, ESQ.,

Chief Inspector of Mines in India,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,
DEPARTMENT OF COMMERCE AND INDUSTRY.

Dated Dhanbad, 24th May 1917.

SIR,

I have the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1916.

EXPLANATORY INTRODUCTION.

It is necessary to explain that this is a report relating entirely to the administration of the Indian Mines Act, 1901, and is not a complete statistical review of Indian mining and analogous industries. It should be remembered in reading the statistics that there must be a considerable output from quarries which are under 20 feet deep; and owing to the exclusion of such places from the scope of the Mines Act, these figures should not be regarded as a complete index to the production of the mineral wealth of the country.

Figures of production of all minerals raised in British India and the Native States, whether from workings under the Act or not, are published annually in the Records of the Geological Survey of India, whilst every five years a Quinquennial Review of the Mineral Production of India is issued by the same Department. The latest review published is that for the years 1909—1913 (Records, Geological Survey of India, Volume XLVI). Figures for Mysore, where most of the Indian gold is raised, are given in the report of the Chief Inspector of that Native State, and mineral statistics may also be found in the administrative reports of the various Presidencies, Provinces and States of India.

This report is divided into five sections, *viz.*:—

Section I.—Persons employed.
„ II.—Output of mineral.
„ III.—Accidents.
„ IV.—Prosecutions and additions to the Act.
„ V.—General remarks.

Section I.—Persons employed.

During the year 1916 the average number of persons working in and about the mines regulated by the Indian Mines Act was 197,919, of whom 127,289 worked underground and 70,630 on the surface.

One hundred and twenty-four thousand seven hundred and seventy were adult males, 66,855 were adult females and 6,294 were children under 12 years of age. This is a decrease of 17,831 workers or 9·90 per cent.

Those employed in coal mines numbered 143,459, which is a decrease of 2,078, as compared with those employed in 1915.

The labour supply in the coal-fields of Bengal and of Bihar and Orissa was normal during the first nine months of the year. The rains lasted well into October, a fact which coincided with, and probably was the cause of, a most unusual and severe epidemic of malaria. The effect of this epidemic, as far as its relation to labour supply was concerned, was considered by some managers to equal that of the cholera epidemic of 1908. A late harvest and good crops were also resultants of the late rains and were contributory causes of shortage of labour, which was felt to the end of the year.

A special committee of inquiry was appointed by the Government of Bihar and Orissa towards the end of the year, to investigate the question of the housing of labourers at the collieries in the Province.

The labour supply to the Assam coal mines was affected by the stoppage of Arkattie recruiting, but, in view of the fact that 1916 was the first complete year for Sardarie recruiting, the result was fairly satisfactory. Nearly 400 sirdars were despatched for recruiting, of which about half were still away at the end of the year. The number recruited was 638. Six hundred and sixty-one Nepalese and 175 Mekranis were recruited by other agencies. The figures include children.

The percentage of foreign labour for manganese mines in certain districts of the Central Provinces continued to be high.

The scarcity of labour in the mica fields of Bihar and Orissa was an outstanding feature of the industry during the year. In the Madras field the supply met requirements. The experiment adopted some time ago of employing criminal tribes as mine labourers, mentioned in the report for 1913, has not proved a success. Owing to their indolent habits and lack of skill, they are more expensive than free labourers. The large settlement at Kalichedu, at one time numbering over 1,000 persons, has been reduced to about 400.

At the wolfram mines in Tavoy a "Protector of Chinese" has been appointed for the hearing of complaints and for the general amelioration of the coolies. The Chamber of Mines continued its activities, and every firm of importance is now represented on it.

Section II.—Output of Mineral.

COAL.

There was again a small increase in the output, which was 16,419,082 tons. This is an increase of 66,602 tons or ·41 per cent. over the output of 1915.

As might have been expected during such disturbed times, there were increases and decreases in the figures which go to make up the above total. The chief decreases were in Jharia, where the decrease was not far short of two hundred thousand tons, in Assam and in the Panjab. In the Raniganj field there was an increase of slightly over fifty thousand tons, and there were also increases in the Sonthal Parganas and in the Central Provinces. The chief increase, however, comes from the comparatively new coalfield of Bokaro-Ramgarh, which practically balanced the decrease in Jharia. If this new field had not come on during the year, as it did, there would have been a set back in the total output.

The coal trade passed through many vicissitudes during 1916, and many circumstances which could operate against the well being of a trade had to be contended with. Until March there was considerable wagon shortage and the early hot weather brought in cholera. In the latter part of the year, the outbreak of malaria, mentioned in the foregoing section, affected the output severely. It had the effect of increasing the demand for the Central Provinces product, the market for which was poor for the first eight months in the year. The late rains, however, which extended to this province, and exceptionally heavy crops acted adversely on the labour supply and curtailed raisings.

The opening stocks were 1,872,321 tons, and the closing stocks were 695,863 tons. The despatches amounted to 15,103,241 tons, and the colliery consumption to 1,625,255 tons, (9·89 per cent. of the output). The amount of

coal delivered to coking was 867,044 tons, from which 193,792 tons of hard coke and 324,172 tons of soft coke were made. Analyses of these figures will be found in Appendix I, table 2.

Of the total output, 15,754,598 tons or 95·95 per cent. were raised in Bengal and Bihar and Orissa, the percentage of the last five years being 95·76.

In the other provinces, the increases were in the Central Provinces, 13·71 per cent., and North-West Frontier Province (output negligible), 25 per cent., and the decreases were in Assam, 7·71 per cent.; in Baluchistan, 3·31 per cent.; in Burma (output negligible); 100 per cent.; and in the Panjab, 18·07 per cent.

The output per person employed during the year was (*a*) below ground 178 tons, and (*b*) above and below ground 114 tons. The figures for the five years preceding were (*a*) 177 and (*b*) 114. Taking each group of coalfields separately, these figures were as follows:

Bengal and Bihar (*a*) 183 and 181, (*b*) 117 and 116; Assam (*a*) 155 and 184, (*b*) 103 and 120; Baluchistan (*a*) 61 and 73, (*b*) 38 and 47; the Central Provinces (*a*) 122 and 122, (*b*) 81 and 85; and the Panjab and North-West Frontier Province (*a*) 68 and 62, (*b*) 45 and 40.

The output in England in 1914 was 290 tons per person employed below ground and 234 tons per person employed above and below ground. These are pre-war figures.

MICA.

There was a large increase in the output, which was 35,978 cwts. as compared with 24,063 cwts. in 1915. This is an increase of 49·52 per cent. Throughout the year, all mica, both block and splittings, and both Bengal ruby and Madras green, were in good demand and prices ruled firm, except for the cheaper grades of splittings, the price of which did not compensate for the great increase in freight and mining charges. A good deal of the trade in these cheaper classes was suspended.

The price of grades 5 (3 to 6 inches in area) and 6 (1 to 3 inches in area) was 25 per cent. higher than in 1915. The output of these grades approximates half the total output.

Good quality clear and partly stained ruby block mica was much sought after for munition purposes, and the supply coming forward was so unequal to the demand, that, at the request of the Ministry of Munitions, the Government of India prohibited all free dealings in these grades, (sizes 3 to 6) and purchased them for national use. This special demand resulted in a stimulation of buying activity, peculiarly of the lower grades, such consumers, as had formerly been buyers of high grades, being forced to fall back on inferior sorts. One result of this was that prices for consignments of Madras stained reached a considerably higher level than previously recorded.

In Bihar and Orissa unfortunately, many of the mines have been ruined, owing to the primitive methods adopted in the past, but, as has been previously reported, some owners are working on improved lines. Vertical shafts have been sunk to a considerable depth, crosscuts have been driven out in the lode at various levels, areas have been properly blocked out, and steam hoists and pumps are being used.

These remarks apply also to one mine in Madras, where generally speaking matters are much as they are in Bihar and Orissa.

If the mines generally were worked on better lines, and wasteful systems were abolished, the output of both fields could be increased considerably, with the same labour force and at a less cost.

It is significant of past methods that, in many cases where old "dumps" have been turned over, first class mica has been discovered.

MANGANESE.

There was a large increase in this output also, which was 568,032 tons, as compared with 378,172 tons in 1915. This is an increase of 50·20 per cent. There was a strong demand, for munition work, in all the allied countries

throughout the year and the mines were worked vigorously. The shortage of tonnage was to some extent relieved by special arrangements for shipment. Prices continued to advance and the average rate per unit was 29¼ pence. Against this must be set a further abnormal increase in freights and other charges incidental to the period, but the results were more favourable to the mine owner than in 1915.

GEMS.

There was again a decrease in the output, which was 209,724 carats. In 1915, 251,449 carats were raised. This is a decrease of 16·59 per cent.

The Home markets were not so dead as in 1915. About the middle of the summer there was quite a demand for fine cut rubies and sapphires, especially the latter, but in the autumn the spurt died down. In India practically all varieties of rubies and sapphires were saleable, but the business was chiefly in the cheaper qualities. Prices advanced all round. The royalty payments from the native miners were almost double those of the previous year.

GOLD.

The output decreased to 23,235 ounces as compared with 24,320 ounces in 1915. This is a decrease of 4·46 per cent.

COPPER ORE.

There was a large decrease in copper ore. The output was 2,671 tons. In 1915 it was 8,010 tons. This is a decrease of 66·65 per cent.

WOLFRAM.

There was a large increase in the output, which was 59,094 cwts. as compared with 39,432 cwts. in 1915. This is an increase of 49·86 per cent. and represents nearly double the average output for the years 1912-14. This increase was the result of the efforts made to satisfy the demand for the mineral caused by the war. Considering the primitive methods of mining and concentration, the scarcity of labour and of supervision, the general absence of capital, the difficulties of transport in an unusually mountainous and thickly wooded area, the prevalence of malaria, and the abnormal distribution of the rains, the increase should be regarded with gratification.

New roads and mule tracks were constructed during the year. The Tavoy river was improved for navigation purposes. A special staff of officers was deputed to the district, under the Deputy Commissioner.

Several large firms entered the industry. Their advent has resulted in a large influx of mining engineers and trained subordinates whose influence should be felt as time progresses.

OTHER MINERALS.

There were increases in salt, iron ore, magnesite, chromite, clay, tin, steatite, silver, fuller's earth and graphite and decreases in limestone, slate and bauxite.

Two minerals, molybdenite and titanium, appear in the appendix for the first time.

Section III.—Accidents.

During the year 1916, at mines regulated by the Indian Mines Act, 1901, there were 140 fatal accidents, being a decrease of 23 as compared with the number in 1915, and a decrease of 4, as compared with the average number of the last five years. There would have been a still further decrease, if the accidents in wolfram mines had not increased considerably.

These accidents involved the loss of 206 lives, which is the largest number since 1913. As in that year, certain accidents occasioned loss of life on a large scale. Twenty-four lives were lost by a sudden subsidence of the surface, owing to the collapse of underground workings, 14 by an explosion of

firedamp, 9 by the bursting of a dam in a river, 6 by the collapse of a winding rope attachment, and 4 by a fall of roof. Number three of these occurred at a wolfram mine and the remaining four at coal mines.

Of these 140 accidents, I regard (*a*) 67 being due to misadventure, (*b*) 31 to the fault of the deceased, (*c*) 10 to the fault of fellow workmen, (*d*) 13 to the fault of subordinate officials and (*e*) 19 to the fault of the management.

The great majority of accidents, as in other parts of the world, continue to be caused by falls of roof and sides. In the year under report they numbered 70, being a decrease of 15, as compared with the previous year. Forty-nine of them occurred in the coal-fields of Bengal and Bihar and Orissa, and in 21 cases they were attributable to the fault of the deceased. Going through fences, to rob pillars was the cause of 14 accidents.

Next to falls of roofs and sides the most numerous accidents occur in shafts, by haulage and on the surface. During the year under report there was a small increase in accidents in shafts, from various causes. Haulage accidents showed a gratifying diminution, being only 12 in number. This is the smallest number for many years. Surface accidents showed a small decrease, but the figure is still high.

The increased use of electrical power at mines is bringing in its train its specific accidents. There were four such fatal accidents, resulting in five deaths, in the year under report.

The sinking of deep shafts is introducing a new danger from falls of material from the sides of the shaft. It has not been the custom in India to brick or line shafts, and at shallow depths this does not appear to have been much needed. As far, however, as a limited experience of shafts over 800 feet has proved, the increased pressure due to depth is exerting its effect and the liability to falls of stone from the sides of such shafts is greater. There is another aspect to this question. Under the rules, the sides of all shafts must be examined weekly. Even with shafts 400 to 600 feet in depth when they are unlined, this is a lengthy process, if it is done properly. In the case of shafts double this depth, the life of which may extend to fifty years, it is worth consideration whether economy, as well as safety, will not be the result of bricking the sides of such shafts, either entirely or for considerable lengths, and saving several thousands of hours taken up in weekly examinations.

The death-rate per thousand employed was 1·04, while that of the preceding five years was 1·10. At coal mines only these figures were 1·18 and 1·24 and at mines other than coal ·68 and ·70. At coal mines in England, during the ten years ending with and including 1914, the death-rate per thousand persons employed varied from 1·08 (lowest) to 1·69 (highest).

The death-rate per million tons raised at coal mines only was 10·29, while that of the preceding five years was 10·87. At coal mines in England during the ten years ending with and including 1914, the death-rate per million tons varied from 4·31 (lowest) to 6·37 (highest).

Of the 206 persons killed, 168 were males, and 38 were females.

The deaths occurring in each class of mines were as follows:—One hundred and sixty-nine in coal mines, 21 in wolfram mines, 5 in manganese mines, 4 in gold mines, 2 in iron mines, 2 in mica mines, 1 in salt mines, 1 in gem mines and 1 in copper mines.

Fourteen persons lost their lives by explosion of firedamp, 46 by falls of roof, 35 by falls of side, 29 in shafts, 4 by explosives, 3 by irruption of water, 12 by haulage, 7 by other accidents underground, and 56 on the surface.

A list of these persons appears in Appendix II, table I. In addition to this there were 34 other accidents causing the death of 37 persons. These also appear in Appendix II, table I, but are listed separately, a reason being given in each case for their exclusion from the statistical tables.

In the Bengal and Bihar mines, where most of the statistical accidents occur, there were 157 deaths, compared with 129 in 1915.

Each accident is briefly described in Appendix II, table I, but the following are reported on at greater length. The numbers refer to the numbers in the appendix.

EXPLOSIONS OF GAS.

No. 1.—Equitable Coal Company, Limited's Dishergarh coal mine.

This explosion, by which 14 lives were lost, is the most serious of its kind in the coal-fields of Bengal and Bihar and Orissa, having regard to the fact that firedamp was ignited by a naked light and that there was no other contributing cause, such as a mine fire.

Three plans are attached to illustrate this report. Plan A shows the general outline of the underground workings and general scheme of ventilation. Plan B shows the workings and the arrangements for using safety lamps and naked lights in the neighbourhood of the explosion, and plan C shows in detail the portion of the mine where it occurred.

The Dishergarh colliery, in so far as the Dishergarh seam, in which the accident took place, is concerned, consists of two inclines (Nos. 1 and 2) and 3 shafts (Nos. 5, 6 and 7). About the middle of the colliery there is a barrier of coal. All galleries through this barrier, except one, are closed by stoppings. In the one gallery in which there is no stopping an iron door is fixed, which could be closed on an emergency, dividing the mine into two sections, eastern and western. The eastern section consists of Nos. 1 and 2 inclines and No. 5 shaft and the western of Nos. 6 and 7 shafts. The explosion occurred in the eastern section. The seam is 18 feet thick and dips to the south at an angle of 1 in 5½. The ventilation of the eastern section is effected as follows. The air enters the mine at Nos. 1 and 2 inclines and, by means of stoppings on the western side of No. 1 incline, is conducted down to the dip workings. As the galleries between Nos. 1 and 2 are all open, these two inclines, together with the galleries between them, form one intake air-course down to the point A, on plan A. At this point the main portion of the air current travels east and then south to B, and then west along the northern edge of the dip workings to C, where a small amount of air, which is allowed to leak through an opening in a regulating door R at A, joins it, and the air current then proceeds westwards to E, near the barrier, ventilating the whole of the dip workings. At this point the air current divides, a portion of it going to No. 5 shaft, where it returns to the surface, whilst the remaining portion goes through the iron door to F, where it joins an intake air current which ventilates a portion of the western section of the mine. This air current, as will be seen, comes down No. 7 shaft.

In the eastern section of the mine, the first mining operation of forming pillars and galleries had been extended to the southern or dip boundary, and the work in progress consisted only of the removal or goafing of the pillars. The area from which pillars had been removed is shown hatched, and marked 'goaf' on plans A and B.

In the report for 1915, an account was given of an explosion in these workings, by which three men were burnt by gas igniting at their naked lights but without fatal results. The area from which the gas issued, causing this explosion, is shown by a yellow ring on plans A and B.

After this explosion, safety lamps were made compulsory in that portion of the workings marked A, B, C, D on plans A and B. Naked lights were allowed from D to E, in the western section. The limits of the safety lamps area are shewn by the positions of the restriction boards on plan B.

Gas was found and reported in the neighbourhood of the yellow ring, between the dates of the two explosions on 79 days in 1915 and on 125 days in 1916.

On the day of the accident, whilst several persons were working in the portion of the mine shewn by the red ring on plans A and B, the sound of a fall of roof in the goaf was heard. The workers retreated to the tram level, shewn on plans B and C, and almost immediately afterwards an explosion of gas occurred. Fourteen persons were burnt to such an extent that they succumbed, some soon after being brought out of the mine, and others on various subsequent dates. Four other persons were burnt more or less badly but recovered, and one or two were slightly burnt. The positions of the various persons are shewn on plan C. It will be noticed that some who were killed

were further away from the goaf than others who were not so badly burnt. The probability is that the gas was forced out of the goaf by the fall in a comparatively pure state and reached its maximum explosive point when it was mixed with the oxygen of the air, as it approached the tram level.

The explosion was fortunately local in its effects; it did not spread further than the immediate locality, and there were no signs of violence.

An inspection made later on in the day disclosed the fact that gas was burning in the goaf, in which a high cavity was observed. The fire was only put out by shutting down the pits and inclines for some hours.

It cannot be stated with certainty from where the gas, which caused this explosion, came originally. It might have been occluded in the roof stone and released by the fall. This, however, is extremely unlikely. What is far more likely is that the gas flowed through the goaf to the cavity from which the fall of roof expelled it, in which case it either came from the goafing of the solid coal, immediately to the west of the red ring, or flowed over from the neighbourhood of the yellow ring. It admittedly did not pass from near the yellow ring along the travelling roads of the mine.

The Local Government ordered an inquiry under section 18 of the Indian Mines Act into the circumstances of this accident, and such inquiry was duly held by the Collector of Burdwan, with the Chief Inspector of Mines in India and Mr. T. H. Ward, Mining Engineer, as assessors.

It was fairly established, as the result of preliminary inquiry, that the gas was ignited by the naked lights used by the work persons. As has been stated, safety lamps were in use from A to D and naked lights from D to E. On the day of the explosion there were a little short of 100 of each kind in use.

The rule under the Indian Mines Act as to the use of safety lamps reads as follows:—

> "No lamps or light other than a locked safety lamp shall be allowed or used—
>
> (*a*) in any place in a mine in which there is or is likely to be any such quantity of inflammable gas as to render the use of naked lights dangerous; or
>
> (*b*) in any working approaching near a place in which there is likely to be an accumulation of inflammable gas;
>
> and when it is necessary to work the coal in any part of a ventilating district with safety lamps, it shall not be allowable to work the coal with naked lights in another part of the same ventilating district situated between the place where such lamps are being used and the return airway.
>
> *Explanation*—For the purposes of this rule, the expression "ventilating district" means such part of a seam as has an independent intake commencing from a main intake air course, and an independent return airway terminating at a main return air course."

There is no legal definition of a main airway in the Indian Mines Act, but in the English Coal Mines Act, 1911, it is laid down that "Main airway" means an airway commencing from, or terminating at, a shaft or outlet to the surface, or any airway from which a split is taken to ventilate any district of the mine, or into which a split so taken returns. It is to be inferred from the definition that an intake airway will cease to be a main intake airway at the point at which the last split is taken from it, and a return airway will cease to be a main return at the point at which the last split inbye enters it.

By the light of this definition and inference, there were only two main intakes in this seam, one the very short intake leading from No. 7 pit to where the air splits east and west, and the other the intake coming from Nos. 1 and 2 inclines. Similarly there were two main returns, one leading up to No. 5 pit and one leading up to No. 6 pit, and there were two ventilating districts, one from A to G and the other west of G.

Apart from these legal definitions, it is generally understood in mining parlance that there is (*a*) an intake taking air to the district, (*b*) the district

in which the miners work, and (*c*) the return airway, taking air from the district. An intake airway ceases to be one when it reaches the district and a return airway commences where it leaves the district.

Two questions therefore arose. Were safety lamps necessary from D to E (*a*) because this part itself was a place where there was likely to be a sufficient quantity of gas to render the use of naked lights dangerous, and (*b*) because they were on the return side of the safety lamps in use between A and D?

In the case of (*a*) the contention of the management was that, as no gas had been found between D and E, they were justified in using naked lights. In the case of (*b*) two pleas were advanced. Firstly, that the gas found between A and B was so small in amount that safety lamps were not necessary under the rule, but were merely used as a matter of precaution, and secondly, that because a freshening split of air was taken direct through a regulator door from A to C, the part A B C and the part C D E were two separate ventilating districts.

Using safety lamps as a temporary precaution in places such as advance drivings, where there might be a little gas and yet in such a minute quantity as not to make necessary the use of safety lamps in the terms of the rule, is, and always has been, common in mining. Nothing is stated with regard to the practice in the English Coal Mines Act, 1887, nor in the Indian Mines Act, but in the English Coal Mines Act, 1911, it is laid down that working with naked lights on the return side of safety lamps is not illegal, if the use of safety lamps is introduced as a temporary precaution and their introduction is not necessary throughout the district. In the absence of definite wording, this is, of course, implied.

To use safety lamps as a temporary precaution in an advance driving is, however, a very different thing from using nearly 100 lamps for several months over so large an area as that from A to D.

With reference to the question of the portion of the mine from A round B and C and the portion from C to E being two separate ventilating districts, it is an essential element in the definition of a separate ventilating district that it should have an independent return airway. There was no independent return airway in this case. In order to have an independent return of the air going from A round B to C, it would be necessary for this air to return to the surface without mingling with the air from C to E. This was not the case. Moreover, in any mine it may be necessary to erect doors and curtains either temporarily or permanently at any point in a ventilating district, to divert the air round certain working places, allowing it to mingle again with the current in the working district. In fact this is the usual method of clearing away an accumulation of gas. It cannot, however, be held to be 'splitting the air' in its legal sense.

The Court of Inquiry formed the opinion that the rule had not been observed in either of its phases. Legal proceedings were instituted against the agent and the manager as detailed in Part IV of this report. The judgment in this important case is, in plain English, that air passing over safety lamps where such are required by rule must not be taken on over naked lights, however much it is diluted.

FALLS OF ROOF.

No. 37.—Equitable Coal Company, Limited's Jamuria coal mine.

This accident, by which four lives were lost, occurred in a seam, 14 feet thick, in which the pillars were being goafed. The system practised was to split each pillar into four "stooks" by small galleries, from 10′ to 12′ high, and then to get out each "stook" to the same height. The timber was then withdrawn and the roof coal fell. The stone above did not fall, as a rule, except for a foot or two, which sometimes came down at the same time as the roof coal. After the roof coal had fallen, the edge of the goaf was examined and, if found good, props were reset under it, and if the fallen coal was found to be of good quality, that lying near the goaf edge was loaded out.

The management professed that no coal was loaded from beyond the props near the edge of the goaf, and that fences were erected to prevent persons

going beyond the props. The inquiry into this accident, and inspection in connection with it, however disclosed two facts :—

(1) that fences were frequently, if not regularly, removed to allow persons to proceed further into the goaf and that at the discretion of the subordinate officials ;

(2) that very much more coal was salved from the goaf than that near the protected edge, as professed by the management.

With such a system an accident sooner or later was inevitable. Both in the report for 1910 and for 1912, with reference to certain accidents which involved serious loss of life, the dangers attending the repropping of goaves, after the first fall had occurred, were commented upon. In the latter case, it was stated " the practice of leaving roof coal when getting pillars, is however, much too common. An element of risk is introduced, which might easily be avoided by the much safer and more economical process of taking down the roof coal as the work on the pillar progresses."

In case of this particular accident the manager, sixty hours before the accident, visited the vicinity and found miners picking up fallen coal at the goaf edge. Having sounded the roof he considered the place unsafe, and ordered the place to be fenced off. On the night of the accident, the night sirdar, having come to the conclusion that there was no danger, removed the fence and set men on to gather coal in the goaf. A very large fall of roof occurred, and four men were killed instantly.

After the accident an undertaking was given that the system would be changed.

FALLS OF SIDE.

No. 42.—Messrs. Martin and de Paulsen's Paungdaw wolfram mine.

No. 57.—Messrs. Finlay, Fleming & Co.'s Rubber Mile wolfram mine.

In the first of these two cases a man was killed by a fall of side in an open work, the side of which he had been undermining. The Deputy Commissioner of the district came to the conclusion that the supervision was defective and that if it had been effective the accident would not have occurred. In the second case a miner was killed by a fall of side in an abandoned adit. Beyond the warning said to have been given him by the tributer contractor, who worked the adit previous to its abandonment, no one appears to have forbidden him to work there. The high accident rate in wolfram mines will not be lowered unless responsible officials are appointed to stop persons, if necessary through interpreters, from working in disused or dangerous places. A headman or tributer contractor is not an official. The entrance of all such places should be barricaded off.

IN SHAFTS.

No. 72.—Bengal Coal Company, Limited's Sanctoria coal mine.

Whilst four men were being lowered in a shaft, 238 feet deep, the engineman lost control of the winding engine and the cage struck the landing platform at the bottom with violence. One man was killed outright, another man died three days, and a third eleven days, later.

Overwinding accidents are rare in India, a fact which redounds greatly to the credit of the drivers. It was open to question whether or not the driver in this particular case was intoxicated. The Inspector of Mines formed the opinion however that, in addition to other defects, the brake was not of sufficient strength. He reported that " with steam shut off and the cylinders empty, it was impossible to hold the loaded cage a few feet above the bottom of the shaft."

According to the rule on the subject under the Indian Mines Act, the engine had to be fitted with "an adequate brake or brakes." This was copied from the English Act of 1887 and in neither Act is it laid down what constitutes an adequate brake. In the English Act of 1911, however, the rule reads as follows:—" Where the apparatus used for lowering and raising persons is

worked by mechanical power, there shall be provided one or more brakes of sufficient power by themselves to hold the cage, when loaded, at any point in the shaft."

In order to safeguard life and limb, owners, agents and managers should not be satisfied with a brake of less power than is specified in the above rule.

No. 75.—Messrs. Baliram & Company's Srikristopur coal mine.

Whilst a miner was descending a shaft, in a cage, he fell out to the bottom of the shaft, and was killed. The cage was not fitted with gates, or the man's life would not have been lost. They have since been fitted.

No. 77.—Bengal Coal Company, Limited's Sitalpur coal mine.

Six men got into the cage at the top of a shaft, in order to be lowered into the mine. The cage had not descended more than a few feet, before the wrought iron capel or sheath, which will be seen in Photograph No. 2, Plate A, by which the end of the rope is gripped and which, by means of a ring at the bottom, connects the rope with the chains of the cage, opened out and released the rope. The cage at once fell to the bottom of the shaft, a depth of 375 feet, and the occupants were all killed.

The mine consists of two shafts. No. 1 shaft being the downcast, through which the air enters the mine, and No. 2 at which the accident happened, the upcast, by which the air, having ventilated the mine, is drawn to the surface. This is effected by means of a suction fan at the top of the upcast shaft, and in order to ensure that the air shall be drawn from the mine itself, and not merely from the pit top into the fan drift, a few feet below, it was necessary to provide the top of this shaft with two covers or bonnets, as will be seen in Photograph 1, Plate A. Had the shaft not been used for winding, it would have sufficed to have planked over the top of the pit, but as it was used for winding, these bonnets, one for each cage, were installed. As each cage comes to the surface, the four chains from which the cage is suspended raise the bonnet, the place of which, as an airstop, is then taken by the cage itself.

The method by which the end of the rope is connected to the cage, is illustrated by plan D. The rope is first fixed in the capel. The capel is then attached to a D link and then again to an overwinding hook known as the King hook. The King hook is then attached to the four cage chains by another D link. In connection with the King hook, it should be mentioned that there is up in the head frame a plate known as the bell plate, or King plate, with a hole in it, about 8 inches in diameter. In the event of an overwind the rope, capping, D link and King hook would all be drawn up through the hole in the bell plate. The rivets in the King hook would be automatically sheared, and the hook itself, expanding automatically, would release the rope, keep the cage in position (since the hook after expansion could not pass back through the bell plate) and prevent it falling down the shaft.

A reference is now made to the detail of the capel. As will be seen in Photograph 2 (right side), Plate A, which shows both the capel and the King hook underneath it, it is in the shape of a very long U, and when the two legs of the U are brought together, they clamp tight on the rope. This in itself would not be enough to hold the rope under any tension. To give a better grip it is necessary to thicken the end of the rope, accordingly, about two feet from the end a small ring is fixed round the rope. The rope is then unravelled and the wires are cut into certain lengths, in order to form a cone when bent back over the ring. The cone is then bound round with spun yarn as shewn in Photograph 2 (*left side*), Plate A. This cone is then inserted in the capel, the two legs of which are held tight against the rope by means of three iron rings, which are hammered as far down as they will go over the capel. These rings will also be seen in Photograph 2 (left side), Plate A, resting on the cone of the rope, after it had been drawn out of the capel at the moment of the accident. The circular piece of wood seen in the photograph, just over the middle ring, lies on the top of the bonnet to prevent unnecessary leakage of air. The rope passes through a hole in this disc of wood, and through a larger aperture in the top of the bonnet.

The Local Government ordered an inquiry under section 18 of the Indian Mines Act into the circumstances of this accident and such inquiry was duly held by the Collector of Burdwan, with the Chief Inspector of Mines in India and Mr. G. C. Lathbury, Colliery Superintendent, East Indian Railway, as assessors.

The following extracts from the findings of the court are given :—

"We should point out that for a rope to be pulled out of a capel, as this one was, in ordinary colliery winding, is unheard of, and it is necessary therefore to look for some very unusual cause. The theory advanced by the management was that the rope was drawn through the capel without the rings being disturbed, or at any rate without the rings being moved off the capel at the time of the accident. The agent of the colliery sought by some questions put to Indian witnesses to prove that the accident happened before the cage had descended two feet, in which case the rings could not have been disturbed by any outside agency, as the capel would not have passed through the aperture in the top of the bonnet. The onsetter at the pit bottom said: 'The southern cage had only risen two feet, when the cage fell'. The banksman at the pit top said: 'When the cage fell it had descended about a foot from the pit top'. The winding engineman said: 'When the cage fell it had been lowered about a foot from the keps'."

"The evidence of Mr. Powell Williams, who is an expert in the subject and had also witnessed various tests of rope capping, is, however, fatal to this theory. Mr. Powell Williams says 'While the rings remained, even if they were loose the rope could not have been drawn through (the capel) without tearing it to pieces. My opinion is that at the moment of the accident the rings had been knocked off the capel'."

"We consider this opinion entitled to the greatest weight, not only on account of the expert knowledge of the witness, but because it is confirmed by the professional experience of two of our number. The manager and the company's mechanical engineer express the same view, as also the Inspector of Mines. We think it must be accepted as deciding the point at issue. The evidence of the Indian witnesses referred to above, men of low class and limited intelligence, cannot be taken as proving what we are convinced would be a physical impossibility. The ideas of such men, regarding time and space, are notoriously inaccurate, and it is very unlikely that in the excitement of the moment of such an accident they really would have been able to observe correctly the exact distance the cage had travelled, a matter which in their daily work they would never be called upon to notice. If their evidence be accepted as accurate, the only theory compatible with it and with the opinion of Mr. Powell Williams is that the rings were knocked off the capel at some time previous to the moment of the accident. Just before the six persons got into the cage a full load of coal had been drawn up the shaft in it, and on this theory we are compelled to assume that the rope had remained in the capel without the tightening rings upon it, though subjected to this extreme tension. We think it impossible that this could have happened. We come therefore to the conclusion that the rings were on the capel up to the moment of the accident. We have already found that with the rings still on the capel the rope could not have been drawn out. It follows therefore that the rings were knocked upwards off the capel on to the rope at the moment of the accident. Had this been done by a single blow, the shock must necessarily have been of such violence as to leave noticeable marks on the rings and on the top of the bonnet. No such marks were found, and it is therefore most probable that the rings, though still on the capel, were loose at the moment of the accident. We are of opinion that the rings were loosened probably through some period of time, by frequent knocking against the edge of the aperture in the top of the bonnet. This top consists of a circular ring of iron $12\frac{1}{2}$ inches in diameter. Just below it the woodwork of the bonnet projects, so as to reduce the opening in one direction to $10\frac{3}{4}$ inches. The Inspector of Mines points out in his report that the woodwork just below the ring on the north side of the opening was worn and torn in the form of a circle, and most of the torn fibres were bent down or had the appearance of having been struck violently by something circular in shape. This, in our opinion, points to the fact that the rope did not

always descend through the centre of the opening. It was noticed, when the court made an inspection of the apparatus, that the pulley wheel at the top of the head frame over which the rope goes from the engine to the shaft, was not revolving in an absolutely vertical plane, and this in itself would be enough to throw the rope out of the centre as it passed through the aperture. It was also noticed that the guides keeping the cages and the bonnet in position were not as tight as they should be, and that the bonnets did not always take up the same position when being lowered on to the shaft top by the descending cage. Some few days after the accident, the rope on the north cage was observed by one of the assessors to be out of the centre line, in the direction where the woodwork under the iron ring had been worn. The management brought evidence to prove that some of this wearing had been done by a chisel. Even had it been, we do not consider that it would have been chiselled in the peculiar small circular shape in which it was noticed to be, and the mere fact of its having had to be chiselled on this side, after it had been put into position, inclines us to think that something was wrong with the bonnet. In his evidence to the Inspector of Mines, the agent said: 'I noticed that the rivets of the iron ring at the top of the north bonnet were loose, and the woodwork was cracked down the side of the bonnet. I asked the manager the cause of this and he said they had been damaged by the bull (cage) chain and with this opinion I agreed'."

"We have grave doubts whether the damage was done to the bonnet by the bull chains. The actual reason was alleged to be that the plane of the chains, when tightened was not parallel with the slope of the bonnet. We do not consider that this in itself would be sufficient to loosen the rivets and crack the woodwork in the manner described. We think it far more likely that the bonnet was not receiving proper usage through being knocked by the capel and by the hook and links attached to the rope. It was urged by the management that the breadth of the King hook and the D links, being greater than the diameter of the rings, the former would be more likely to touch the sides of the bonnet than the rings above them. It is, however, quite possible that, as the King hook passed through, the rope was vibrated by the King hook knocking on one side of the bonnet and throwing the rings against the other side. Contributing causes may have been the fact of the pulley wheel not running true, or of the cage being taken to one side by the guides in the shaft. In his evidence given to the Inspector of Mines, the agent stated that, in his opinion, the accident was caused by vibration, which had loosened the rings on the capel. Such vibrations would be due to the rope being relieved of the weight of the bonnet, as it reached, and rested on, the shaft top. He admitted that this would be a long process extending over at least several days, but the effect would not be noticeable until just before the accident. He pointed out that the rings are held in position by spring friction and there might have been some skin friction, due to the shape of the jaw of the capping. In his evidence before this court the agent qualified his previous opinion by saying that, while the loosening of the two upper rings through vibration was the final cause of the accident, he thought that the loosening of the lower rings was due to the fact that possibly some time before the accident the cage had been taken up to the bell plate at night, without causing an overwinding, and that on the lowering of the cage, the bottom ring received a blow. He advanced another theory, that possibly at some time when the cage was being lowered, the winding rope slackened right down and the lowest ring received the blow. The company's mechanical engineer was of opinion that the ring was loosened by coming in contact with the cage, and the agent thought that that might be a possible theory; he admitted however that the loosening of the bottom ring in this way would not necessarily loosen the upper ones too. He also suggested that some persons might have loosened the rings from malice, in order to destroy property. But all these theories merely seek to explain how the rings may have become loose. They do not explain how the rope could have been drawn out of the capel, since we have found that this, with the rings still upon the capel even though loose, was impossible. The rings must have been knocked upwards off the capel at the moment of the accident. We consider that nothing but the top of the bonnet, either the iron ring or the woodwork, could have done this. The rings must have been loosened by previous blows, and it is perfectly

reasonable to assume that these were also caused by knocking on the bonnet top. What certainly happened once may also have happened before. This then is our conclusion."

"We wish to say that the capel is one of the best types of capels in daily use at collieries. We are also satisfied with the evidence of the Inspector of Mines, that, from its appearance after the accident, the capel had been properly put together and fastened to the rope. The bonnet is of a type used at the largest and best equipped collieries throughout the world, and if the capel, rings, links and hooks had always passed clear through the aperture at the top, the accident, in our opinion, could not have occurred. For this defect in the winding apparatus, we consider that the manager must be held ultimately responsible, but we must point out that so far as we are aware, this is the first accident from this particular cause that has ever occurred and we have no doubt that the manager did not realise the danger of the bonnet not keeping perfectly concentric with the winding rope. To this extent he committed an error of judgment. It must also be pointed out that this shaft was not generally used for the raising and lowering of persons. The other shaft, No. 1, was the one generally used, and No. 2 shaft was being so used on the day of the accident because the No. 1 shaft engine was being repaired."

"With regard to the position of the agent, he is the agent of all the Bengal Coal Company's collieries, and it is not the duty of an agent to see that every piece of apparatus at a colliery is in proper repair and properly run. That is the duty of the manager. When the agent discovered that the rivets and rings at the top of the bonnet were loose and that the woodwork was smashed he asked the manager the reason, as we have before stated. We consider that he was justified in accepting the manager's explanation."

"In rule 2 of Notification No. 864-68-20, dated 14th March 1904, made under section 20 of the Indian Mines Act, it is laid down that in any mine which is usually entered by means of machinery, as this mine is, a competent person or persons appointed by the owner, agent or manager for the purpose shall, once at least in every 24 hours, examine the state of the external parts of the machinery and of the head gear, ropes, chains and other similar appliances of the mine which are in actual use both above ground and below ground. At this mine this duty devolved upon the head fitter. It is clear from the evidence of the banksman, that the head fitter did not examine the capel and its rings. By the wording of the rule such capels and rings should be examined daily. Mere visual examination is useless. To examine them adequately they should be tapped with a hammer."

"We consider that this accident proves the necessity for taking the greatest care, when bonnets are used in upcast shafts, that there is no possibility of any part of the winding apparatus coming in contact with the bonnets."

No. 88.—Bengal Coal Company, Limited's Sodepur coal mine.

In this case a piece of coal fell down a shaft, 417 feet deep from the surface, through the clearance between the protection board and the cage and struck the onsetter at the bottom of the shaft.

In the report for 1915, when commenting on a fatal accident, attention was drawn to the danger attending in excessive clearance between the protection board and the cage, and it was stated that, with properly tightened guides, there was no reason why the distance should exceed six inches. In this case the clearance, which was irregular, was in one place 2'-8" and for a considerable length 1'-9". Such a pit bottom is a dangerous place. Precautions against common and obvious dangers, which are not enforced by law but are left to the professional knowledge of agents and managers, should receive special attention at their hands.

MISCELLANEOUS ON SURFACE.

No. 128.—Eastern Coal Company, Limited's Bhowra coal mine.

This accident occurred at night. Some workings in No. 14 seam, situated between two inclines, suddenly collapsed and the surface ground above them

subsided to a depth of 10 to 12 feet and over an area 200 feet by 190 feet. On or near this area of ground were three rows of miners' huts or dhowras. The eastern row, being just outside the subsided area, remained intact. The middle row went down vertically with the subsided ground and the occupants were uninjured. The western row collapsed completely, possibly because, being near the edge of the excavation, it did not fall vertically but was given a lateral push or rocking motion, or possibly because it was not so strongly built as the others. Unfortunately, several persons, about 45 in number, were asleep in this row, and 7 men, 9 women and 8 children were killed, being suffocated by the debris of the fallen building.

The seam is very thick, being from 28½ feet to 40 feet, and lies at the high inclination of 1 in 2·87. After the fall it was seen that the roof consisted of jointed shaley sandstones and there were signs of natural vertical cleavage, these conditions being no doubt due to the forces brought into play at the time of the formation of a fault on the dip side of the workings. This fault is an upthrow to the south-west. All the above conditions were adverse and were contributory causes in the bringing about of the accident.

The underground workings had been formed by making in the preliminary working, pillars, 55′×45′, centre to centre, with galleries 10′ wide. This would leave pillars 45′×35′. After they had been so formed, a secondary working was decided on. The management did not want to bring in the surface at this place, as this would have involved water getting into the mine, to the detriment of some other workings in the vicinity. The goafing, or removal of pillars in the ordinary way did not therefore meet the case. At the same time it was desired to get as much coal as possible, before finally abandoning the district. It was therefore decided that the pillars should be split by driving galleries 10′ high×10′ wide through them in both directions. Thus each pillar would be divided into four "knobs" or "stooks," which would be 17½′ by 12½′ for a height of 10 feet. This secondary working was carried out in the case of a good many pillars and in the case of nine pillars under the area which collapsed, leaving six pillars standing, as originally formed, in five of which splits had been commenced.

The Local Government ordered an inquiry under section 18 of the Indian Mines Act into the circumstances of this accident, and such inquiry was duly held by the Deputy Commissioner of Manbhum, with the Chief Inspector of Mines in India and Mr. T. H. Ward, mining engineer, as assessors.

The following extracts from the findings of the Court of Inquiry are given :—

"In our opinion the extraction of this amount of coal would not have endangered the surface, and the fact that the accident occurred as it did, forces us to the conclusion that a good deal more coal must have been extracted than was arranged by the management. Judging by the original galleries surrounding the subsided area, the original galleries in the subsided area were probably not much increased in width — probably 12 to 13 feet would represent the maximum width. We think therefore that it is reasonable to assume that the cause of the weakness was that splits, or galleries driven through the pillars, were of greater dimensions than 10′×10′. The probability is that some of the "stooks" were nothing like 17½′×12½′, the result being that at some weak point the power to sustain the pressure was overcome and the remaining pillars in the subsided area were unable to resist the change in the balance and collapsed, together with the pillar, at the weakest point. The great height of the pillars, extending in some cases to thirty feet, was an important factor in bringing about such collapse."

"The thinning of these "stooks" could have been brought about in two ways, either by deliberately allowing the miners to drive the splits too wide, or by subsequent pillar robbing by the miners, after the splits had been finished and fenced off. The latter cause is far the more likely. These splits are all close to the tram line and it is from such places that coal is generally robbed. With the connivance of the sirdar, such robbery would not be difficult."

"The evidence generally as to the size of the "stooks" is vague and unsatisfactory and in our opinion tends to prove that they were not the size they were

designed to be. There certainly was no direct evidence that they were of the proper size. The overman does not remember any day that he had a general look round inside the fenced areas. He admits however that he had several times found cases of pillar robbing and reported such cases to the manager. He further admits that the height of some of the splits was 15 feet, which would undoubtedly weaken the "stook" at such places, and stated that he did not think that the "stook" at one place was more than 10 feet square. The under-manager stated that he had not seen the fenced areas for a fortnight, and had certainly seen galleries wider than originally driven. He also spoke of falls from pillars. He said that to his knowledge there was no "stook" in that area seriously under the designed dimensions of $17\frac{1}{2}' \times 12\frac{1}{2}'$, but immediately afterwards qualified this by admitting that these dimensions would only hold good if the galleries and splits were 10 feet wide. The manager did not inspect the splits which had been fenced off."

"In our opinion there was no doubt that the "stooks" were of such dimensions as to be nothing like as strong as "stooks" $17\frac{1}{2}' \times 12\frac{1}{2}' \times 10'$ would be, and, if our opinion is correct, the overman and the sirdar are primarily responsible for bringing this state of things about. They are of course not responsible for the presence of the persons in the dhowras. The under-manager's inspections, from the point of view of the stability of the workings, appear to have been worthless. The chief responsibility for the death of these persons, however, falls, in our opinion, on the manager. He was undoubtedly trying an experiment underground, in splitting the pillars in this way. Experiments may succeed and they may fail. If the dimensions originally designed were not conformed to, failure was more than possible. In these circumstances it is difficult to conceive how the manager omitted both to empty the dhowras and to take such steps as would ensure that the minimum amount of support was provided. Either one of the two should have been done and neither was done."

"We feel quite satisfied that the manager had no suspicion that the accident was likely to occur. At least Rs. 2,000 worth of tubs and Rs. 2,000 worth of rails have been lost in the collapse, the former of which could easily have been removed the day before the accident. The manager satisfied us also that there was no lack of dhowra accommodation and that he could easily have transferred these people had he realised that they were in danger."

No. 133.—Quah Cheng Guan's Wazunchaung wolfram mine.

The cause of this accident, by which nine lives were lost, was the breaking of a dam, which had been erected to dam back a river on another company's concession. The released water, sweeping down a valley, carried everything before it, including fallen trees and logs, by which much damage was done, and drowned the deceased in their coolie lines, which were about 85 feet from the river and approximately 20 to 25 feet above it. The lines were demolished.

The dam was built across a small valley, in order to supply water for sluicing the hill sides towards the east for wolfram. A fourteen inch cement concrete wall was built across the narrow valley, which is in granite on its southern side, and decomposed argilites or clay schists of the Mergui series on the other. This concrete wall for the greater part of its length projected very little above the bottom of the dam, in other words it bore very little pressure of the water behind the earthen embankment and did not serve in any way to protect the greater proportion of the bund above it. A wing wall of cement concrete 12 inches thick at the top was built against the granite on the south side, and in it a sluice gate and a by-pass or flood escape gate were placed. The wing wall was necessary to prevent erosion of the dam by the water passing through the sluice gate. The bund was about 10 feet high and built of decomposed argilites and its accompanying clay, from an excavation on the north side just above the dam. At the top of the concrete wall the bund was 24 feet thick and $4\frac{1}{2}$ feet thick at the upper surface. The length of the dam was about 55 feet. At the by-pass sill the depth was 6 feet 8 inches, which would extend the water surface to approximately 130 feet up stream, measured from the centre of the dam, though up stream there is considerable shallowing. The top of the bund was slightly higher at the sides than in the centre, in other words it sagged towards

the point where the breach occurred, though it is not clear whether this was due to original construction or later sagging. The flood escape gate was 16 inches high by 9 inches wide. It only possessed therefore an area of one square foot. The breach in the bund was 18 feet in width and the earth had been cleaned right away down to the top of the wall.

The disaster was due to the bad location and worse construction of the dam. Regarding the latter, the following points may be noticed:—

(*a*) In a situation of this kind the concrete wall should have been much higher and ought to have finished at the top of the bund, instead of at the bottom.

(*b*) The section of the bund exposed in the breach shows that the earth, of which it was composed, was merely thrown in and not rammed down or deposited in layers. No attempt seems to have been made to puddle the material at all or to utilise the well-known principle of a clay core to prevent leakage.

(*c*) The by-pass or flood water passage was totally inadequate and would not prevent the dam from overflowing. During heavy and continuous rain, its capacity would not allow it to remove as much water as the streams and catch water drain were pouring in.

Section IV.—Prosecutions and additions to the Act.

PROSECUTIONS.

Judgment was given in the following prosecutions during the year. Unless otherwise stated, 'rule' means a rule under Notification No. 864-68-20, dated the 10th March 1904, being rules for the working of coal mines.

The owner of Babu Annada Prosad Sircar's Khudika coal mine was prosecuted under rule 1 (*a*) and rule 50 of Notification No. 2698-82, dated 21st April 1906, for employing persons in a mine which was not provided with two outlets and for not authorising a person to act in an emergent case as manager. He pleaded disagreement with his managing agents, who were working the colliery. He was found, however, to be technically liable and was fined Rs. 50: in default two weeks' simple imprisonment.

The owner and manager of Babu Satya Taran Chowdhury's Pandedih coal mine were prosecuted under rules 1, 3 and 7, read with section 23(3) (*e*) (1), for employing persons in a mine which had no second outlet, (2) for not having the roof of the workings kept secured and (3) for not fencing galleries, the roofs of which were unsafe. The owner was fined Rs. 100 and the manager Rs. 25.

The owner of Munshi Sheikh Woomerali's Egarcoor coal mine was prosecuted under rule 12, read with section 22(2) (*b*), for not furnishing the plan of a discontinued mine. He was fined Rs. 15: in default two weeks' simple imprisonment.

The owner of the Birsingpur Coal Company's Birsingpur coal mine was prosecuted under section 13(1), read with section 23(3) (*e*), for working a mine without a properly qualified manager. He had been previously warned. He was fined Rs. 15: in default fifteen days' simple imprisonment.

The owner and manager of Babu Bholanath Chatterji's Haripur coal mine was prosecuted under section 15(2), read with section 23(3) (*a*) and rules 2(*b*) and 2(*e*), read with section 22(3) (*e*), for (*a*) failing to comply with an order passed by the Inspector of Mines under section 15 (2), prohibiting employment of women and children underground, (*b*) not providing an adequate brake for a winding engine and (*c*) not providing guides in a shaft. They pleaded guilty. The owner was fined Rs. 35: in default one month's simple imprisonment. The manager was fined Rs. 10: in default two weeks' simple imprisonment, for the first offence, and was warned as regards the second and third offences.

The owner (also manager) of Babu Mungalbhai Somabhai Patel's Rajpura coal mine was prosecuted under rule 19, read with section 22(3) (*e*), for not fencing the top of a quarry. He pleaded guilty and was fined Rs. 5: in default five days' simple imprisonment.

The owner of Babu Woopendra Nath Mukherji's Rajpura coal mine was prosecuted under rule 19, read with section 22(3) (*e*), for not fencing the top of a quarry. He was fined Rs. 5: in default five days' simple imprisonment.

The owner of Babu Lalubhai Patel's Rajpura coal mine was prosecuted under rule 19, read with section 22(3) (*e*), for not fencing the top of a quarry. He was fined Rs. 5: in default five days' simple imprisonment.

The owner and manager of Babu Mohan Lal Parekh's Rajpura coal mine were prosecuted under rule 19, read with section 23(3) (*e*), for not fencing the top of a quarry. The owner was fined Rs. 10: in default one week's simple imprisonment. The manager was fined Rs. 10: in default one month's simple imprisonment.

The manager of Y. Adimma's Pattabhirama mica mine was prosecuted under rule 21 of Notification No. 6436-152, dated 2nd September 1911, read with section 22(3) (*e*), for not fencing a fly-wheel and a pulley of a pumping engine. He had been previously warned and was fined Rs. 50.

The following were prosecuted under rule 1 of Notification No. 11793-103, dated 30th December 1908, read with section 22(2) (*b*), for not submitting an annual return within the prescribed date:—

(1) The owner of Bandhan modi's Barakola mica mine. Fined Rs. 5.

(2) The owners (two) of Babus Pryag Singh and Ambica Singh's Tandya mica mine. Fined Rs. 2-8 each.

(3) The owners (two) of Babus Kishun Lal Mahato and Nanku Mahato's Ghatia mica mine. Fined Re. 1 each.

(4) The owners (two) of Babu Kishun Lal Mahato and Nanku Mahato's Vinjopok mica mine. Acquitted.

(5) The owner of Babu Jainram Marwari's Kendwa mica mine. Fined Rs. 5.

(6) The owner of Srimati Sindhubala Debi's Choto Dhemo coal mine. Fined Rs. 20: in default 14 days' simple imprisonment.

(7) The owner of Babu Tincouri Dey's New Mosila coal mine. Fined Rs. 25: in default 14 days' simple imprisonment.

(8) The owners (two) and manager of the Pioneer Coal Company's Pioneer coal mine. One owner fined Rs. 15: in default two weeks' simple imprisonment. The other owner fined Rs. 5: in default one week's simple imprisonment. Manager acquitted.

(9) The owners (three) of the Rajput Coal Company's Pirorgoria coal mine. Two fined Rs. 25 each: in default one month's simple imprisonment. The case against the third dropped.

(10) The owners (two) of the Pandedih Coal Syndicate's Pandedih coal mine. One fined Rs. 20: in default two weeks' simple imprisonment. The other fined Rs. 10: in default one week's simple imprisonment.

(11) The owner of Babu Dhannuram Raghunath Ray's Chandkua coal mine. Acquitted.

(12) The owners (two) of the A. I. Coal Company's Edgarcoor coal mine. Fined Rs. 15 each: in default fifteen days' simple imprisonment.

An underground assistant at the Minto Coal Company Ld.'s Viceroy coal mine was prosecuted by the manager under rule 4(*b*), read with section 22(3)(*e*), for not making a true report of the result of his inspection. He was fined Rs. 30: in default three weeks' simple imprisonment.

Information was received regarding the following judgments in prosecutions initiated by managers against employés for breaches of the special rules made under section 21 of the Act.

An assistant, an overman and two sirdars at the Bengal Nagpur Coal Company, Limited's Bhuggutdih coal mine were prosecuted under rule 41, read with section 22(3)(*e*), for not seeing that the roof of a working place was made secure. The case arose out of a fatal accident, by which three men were killed. The assistant was fined Rs. 10 and the others Rs. 5 each.

A miner and his wife at Babu Ramjus Agarwala's Futtehpur coal mine were prosecuted under rule 15, read with section 22(1)(*e*), for working in a place other than the one in which they had been ordered to work. The case arose out of a serious accident to the woman. They were fined Rs. 5 each: in default one week's simple imprisonment.

A sirdar at the Eastern Coal Company's Kankani coal mine was prosecuted under rules 4, 47 and 49, read with section 23(3)(*e*), for leaving his work without giving over charge. The case arose out of a fatal accident by fall of side. He was fined Rs. 5: in default one week's rigorous imprisonment.

An engine driver at the Burelia Coal Company, Limited's Burelia coal mine was prosecuted under rules 4, 5 and 60, read with section 22(3)(*e*), for allowing an unauthorised person to take care of his engine. He absconded.

A miner at the Hon'ble Maharaja Sir N. C. Nandi's Begunia Khas coal mine was prosecuted under rule 15, read with section 22(3)(*e*), for working in a place other than the one in which he had been ordered to work. He absconded.

An assistant at the Bengal Coal Company, Limited's Sodepur coal mine was prosecuted under rule 4, read with section 22(3)(*e*), for deputing another person to do his work without sanction and for absenting himself without permission. The case arose out of an accident (non-fatal) by explosion of firedamp. He was fined Rs. 5: in default one week's simple imprisonment.

An engine-driver at the Nowagarh Coal Company's Katras coal mine was prosecuted under rules 4 and 60, read with section 22(1)(*e*), for allowing another person (an onsetter) to drive his engine without sanction. He was sentenced to six weeks' rigorous imprisonment and a fine of Rs. 20 or one week's further rigorous imprisonment.

The following judgment was delivered after the close of the year under report. In view, however, of its importance and to the fact that it related to an accident which occurred during the year, involving loss of life on a large scale, I append an extract from it in this report.

The agent and manager of the Equitable Coal Company's Dishergarh coal mine were prosecuted for a breach of rule 15, read with section 22(1)(*e*). The agent was convicted and the manager then pleaded guilty. It was pointed out by the accused that there was a practical difficulty against introducing safety lamps throughout the mine, in that they were not obtainable. The prosecution pointed out that the agent was officiating in that capacity for a few months only, while the regular agent was on furlough and that the manager had only held the post for a few weeks. The agent was fined Rs. 200 and the manager Rs. 100. The following is an extract from the judgment:—

* * * * *
* * * * *

Three points have been raised by the defence:—

(1) that accused was not responsible for anything that was done or was not done, but that the manager of the mine was responsible;

(2) that the ventilating district where the safety lamps were in use was not the same ventilating district as that where naked lights were used; and

(3) there was no likelihood of inflammable gas being found at the place where it eventually appeared, thereby causing the accident.

First * * * * accused kept the control in his own hands and was aware of all that was done
* * *

Secondly, were the safety lamps and the naked lights used in the same ventilating area ? * * * * * * C. E. cannot be a separate ventilating district because it would be left with no independent intake and A, B, C, cannot be called a separate ventilating district because it has no independent return air course. The conclusion is that they are parts of the one ventilating district * * * * * * *

The third point is whether there was any likelihood of inflammable gas being found near the area marked by the red circle * * * * the prosecution theory * * * * * is that the appearance of gas at frequent intervals near the goaf edge was a sure sign that the goaf was full of gas, since gas, being lighter than air, would fill the whole cavity of the goaf above the point where it appeared, before it appeared at that point * * * * * * * * * * * * As to the letter from Mr. Leach * * * * * * * * * the chief point is that he advised in it that naked lights should not be used on the return side of the accumulation of gas found by him in the workings near B * * * * * * * * * Mr. Leach held that it was possible that there was a dangerous accumulation of gas in the goaf : but the manager of the mine did not * * * * * * * * * I conclude that * * * * * * on the facts known before the accident in July accused ought to have held there was gas in the goaf *

Five permits, granted to managers of small mines, were cancelled during the year, on account of mismanagement, disclosed by inspection.

ADDITIONS TO THE ACT.

The forms (for the submission of annual return figures) prescribed by Notification No. 11793-103, dated the 30th December 1908, were altered, as prescribed by Notification No. 5072-113, dated the 1st July 1916.

During the year special rules under section 21 of the Act were established at 68 coal mines, making a total of 453, and at 15 manganese mines.

Section V.—General Remarks.

HEALTH AND SANITATION.

The Asansol Board of Health held eight meetings during the year. There was no change in the personnel of the unofficial members. A Chief Sanitary Officer, Dr. J. W. Tomb, M.A., M.D., D.P.H., was appointed and took up his duties on the 3rd May 1916. Three Sanitary Inspectors were appointed to assist him. Their chief work consisted in investigating outbreaks of cholera, when notified, and in recommending steps for their suppression. In all cases where their suggestions were carried out, the disease was checked. They also carried out general inspections, with a view of securing improved water supply and better sanitation.

There were 671 cases of cholera and 241 deaths. These figures for small-pox were 564 and 90.

The Jharia Board of Health held twenty-two meetings during the year. There was no change in the personnel of the unofficial members. The Sub-Divisional Officer of Dhanbad was appointed to be an Additional Deputy

Commissioner of Manbhum during the year and was appointed Chairman of the Board, in lieu of the Deputy Commissioner. The Additional Superintendent of Police was thereupon appointed as an additional official member of the Board. A new rule was promulgated, enabling the Board to establish vaccine stations and appoint vaccinators. Larger powers were delegated to the Chief Sanitary Officer. The division of the mining settlement into three inspection districts, with a Sanitary Inspector for each, was maintained. The policy of the Board has been to inspire by precept and example the colliery owners and other property owners to undertake their own sanitation and conservancy.

There were 898 cases of cholera and 397 deaths. These figures for small-pox were 292 and 10. One death occurred from plague.

Outside the coalfields of Bengal and of Bihar and Orissa, epidemic malaria was reported from the wolfram mines in Tavoy. Efforts were made to cope with it. Cholera was reported from the manganese mines in the Nagpur district. There were 24 deaths. Three deaths from plague occurred also. There were 8 cases of cholera and 3 deaths at Ballarpur colliery. At the Pench Valley collieries and Kutchi Dhana manganese mines there were 69 cases and 36 deaths. Two deaths occurred from plague at these collieries. At Shivrajpur manganese mine there were 49 cases of cholera and 23 deaths. At Anantapur gold mines there were 6 cases and 4 deaths from cholera, 11 cases and 3 deaths from small-pox and 1 death from plague.

The rainfall in the Jharia coalfield was 57·79 inches, in the Giridih coalfield it was 77·50 inches, and in the Raniganj coalfield it was 54·11 inches, These figures for 1915 were 38·83 38·68 and 39·43 inches, respectively. At the new Jharia water works the amount was 71·10 inches.

MINING EDUCATION.

The Professor of Mining at Sibpur College has reported that during the session 1915-16 there were 5 students in the senior course, of whom 3 gained diplomas, and 19 in the junior course, of whom 11 sat for the examination and 6 were qualified for promotion. Of the nine successful candidates in the first class colliery managers' examination, held in 1916, six were old Sibpur boys.

The annual mining camp was pitched at Aldih. There were 25 students in camp, of whom 17 were from the college and 8, who were attending a special course of mine surveying, were from the colliery districts.

The Mining Education Advisory Board held five meetings during the year. Mr. E. W. Bowrey's place, as the Chairman of the Indian Mining Association, was taken by Mr. B. White, and that of Mr. A. S. Thomson, who has left India, by Mr. Glen George. The members of the Board have been appointed members of the Board of Visitors of Sibpur College.

Lectures in the coalfields were again given at five centres during the session 1915-16. The average number of attendances was 24·06, which was a distinct advance on that in the previous session. In addition lectures were delivered in Bengali and Hindi during the cold session of 1915-16.

For some years lectures were given by various colliery managers at the different centres, but, for the session 1915-16, Mr. H. C. Read, who had previously been officiating as Professor of Mining at Sibpur College, was appointed lecturer for all the centres.

The system of education in the coalfields was extended by the holding of a class for the teaching of mine surveying, during the monsoon months, by Mr. Read.

The sessional examination was held simultaneously at the various centres in April 1916, the examiners being Messrs. G. C. Leach, Inspector of Mines, and E. H. Roberton, Professor of Mining at Sibpur College. Twenty-six candidates presented themselves for examination, of whom 17 passed. Mr. John Reynolds (Sijua Centre) obtained the highest marks. The examiners reported that the answer papers showed better application, being fuller in detail and showing considerable improvement in sketching, and showing also in many cases that the student had made a good attempt to cultivate his powers of observation at the mines.

BOARD OF EXAMINERS FOR COAL MINE MANAGERS' CERTIFICATES.

There was no change in the personnel of the Board, which consisted of the Chief Inspector of Mines in India (*ex-officio*) President, and Messrs. S. Heslop and T. H. Ward.

Seven meetings were held during the year. Five first class Indian certificates of competency were granted in lieu of English certificates.

Two first class certificates of service were granted during the year.

At the examination for colliery managers' certificates of competency held at Dhanbad on the 23rd, 24th and 25th February 1916, 49 candidates sat for first class and 70 for second class certificates. Certificates of competency were granted to 9 first class and 15 second class candidates. The examiners were Messrs. R. G. M. Bathgate, J. Kean and R. R. Simpson, Inspector of Mines in India, No. 1 Circle (Official Examiner and Secretary).

MINING BOARDS IN BENGAL AND BIHAR.

The Bengal Mining Board held two meetings during the year when the following subjects were considered:—

(1) Amendment of rules issued under section 11 of the Bengal Mining Settlements Act (Act II of 1912); (2) rules regarding allocation of the expenses of the Mines Board of Health between mine owners and royalty receivers; (3) a proposal to make rules to ensure adequate acquaintance on the part of mine officials with the number of persons working in a mine at any given time; and (4) new draft forms for submitting Annual Returns under the Indian Mines Act.

The non-official members were Messrs. W. Graham and Glen George.

The Bihar and Orissa Mining Board held three meetings during the year, when the following subjects were considered:—

(1) Alteration of rule 19, Notification No. 864—68—20, dated 10th March 1904, made under section 20 of the Indian Mines Act; (2) conversion of three inspection circles into two; (3) draft rules under Bengal Mining Settlements Act (Act II of 1912); (4) a proposal to make rules to ensure adequate acquaintance on the part of mine officials with the number of persons working in a mine at any given time; (5) enquiries into the housing of casual labour on the coalfields of Bihar and Orissa; (6) legal advice available for the Chief Inspector of Mines in India; (7) temporary additional provisions to rules 32 and 33 of the rules regarding coal mine managers and their certificates; (8) necessity or otherwise of more comprehensive rules under the Indian Mines Act for goafing in coal mines to minimize risk of subsidence; (9) steps to be taken to ensure more economical working of coal mines in respect of the methods of extraction adopted and the manufacture of coke; and (10) a proposal to make rules under the Indian Mines Act to regulate labour in Mines.

The non-official members were Messrs. T. H. Ward and R. G. M. Bathgate.

MINING AND GEOLOGICAL INSTITUTE OF INDIA.

The total membership at the end of the year, including subscribers, was 262. In addition to the annual meeting, four ordinary meetings were held during the year for the reading and discussion of papers and two geological field excursions were made. The entrance fee and subscription for an associate member has now been reduced from Rs. 15 to Rs. 10, and the council has the right to remit the entrance fee from time to time as they shall determine. The Government prize for the best paper during the year was awarded to Mr. F. L. G. Simpson for his paper on "A description of the methods of working out the pillars at the Mohpani mines by means of packing and a comparison of the dry and wet systems of packing." The Institute medals were awarded as follows:—

(*a*) the gold medal to Mr. F. L. G. Simpson for his above-mentioned paper;

(*b*) the silver medal to Mr. Glen George for his paper "Development of deep coal areas in Bengal;" and

(*c*) the bronze medal to Mr. E. H. Robertson for his paper on "The commentation process of shaft making."

THE ASSOCIATION OF COLLIERY MANAGERS IN INDIA.

The honorary secretary reports that the membership of the Association increased during 1916 from 168 to 184. Monthly meetings of the council have been held regularly throughout the period and also special meetings when necessary. Many matters in connection with the immediate management of collieries have been dealt with. The Association has given its special attention to the questions of the better control of labour, housing of the workers and similar matters. General meetings have been held in both the Raniganj and Jharia coalfields, and visits of inspection have also been made to various collieries and other places of interest.

LAND ACQUISITION (MINES) ACT, 1885.

The number of original cases disposed of altogether at the end of 1916, stood at 292, twenty-eight of which were cases disposed of during the year.

OFFICIAL DUTIES IN 1916.

During the year the Government of India was pleased to direct that the three circles, into which the whole of British India has, since 1906, been divided for the purposes of mines inspection, should be rearranged as two circles, with an Inspector of Mines in charge of each, assisted by Junior Inspectors. The areas comprised in the circles, as thus rearranged, will be found in Appendix IV, Statement No. 1.

The Government of India was also pleased to direct that the Junior Inspectors should be appointed in all provinces, so that each could be sent on tour to any part of British India. This has added considerably to the efficiency of the Department.

The Government of India was also pleased to appoint the Chief Inspector of Mines as an Electric Inspector and to direct that he shall exercise the powers and perform the functions of an Electric Inspector under the said Act in all mines, as defined in the Indian Mines Act, 1901 (VIII of 1901), situated within the presidency of Bengal and the province of Bihar and Orissa.

Mr. G. F. Adams was Chief Inspector of Mines in India.

Mr. R. R. Simpson was Inspector of Mines, No. 1 Circle. From the 25th April to the 24th May, he had charge of Nos. 2 and 3 circles and from the 25th May to the end of the year, charge of No. 2 circle, in addition to his own duties.

Mr. G. C. Leach was Inspector of Mines, Nos. 2 and 3 Circles. He was granted nine months' leave on the 25th April.

Mr. J. Coggin Brown, Assistant Superintendent, Geological Survey of India, continued to be an Inspector of Mines in Burma.

Mr. J. J. Turnbull was a Junior Inspector of Mines.

Mr. H. Lancaster was appointed a Junior Inspector of Mines on the 22nd February.

I have the honour to be,

SIR,

Your most obedient Servant,

G. F. ADAMS,

Chief Inspector of Mines in India.

PLAN A.

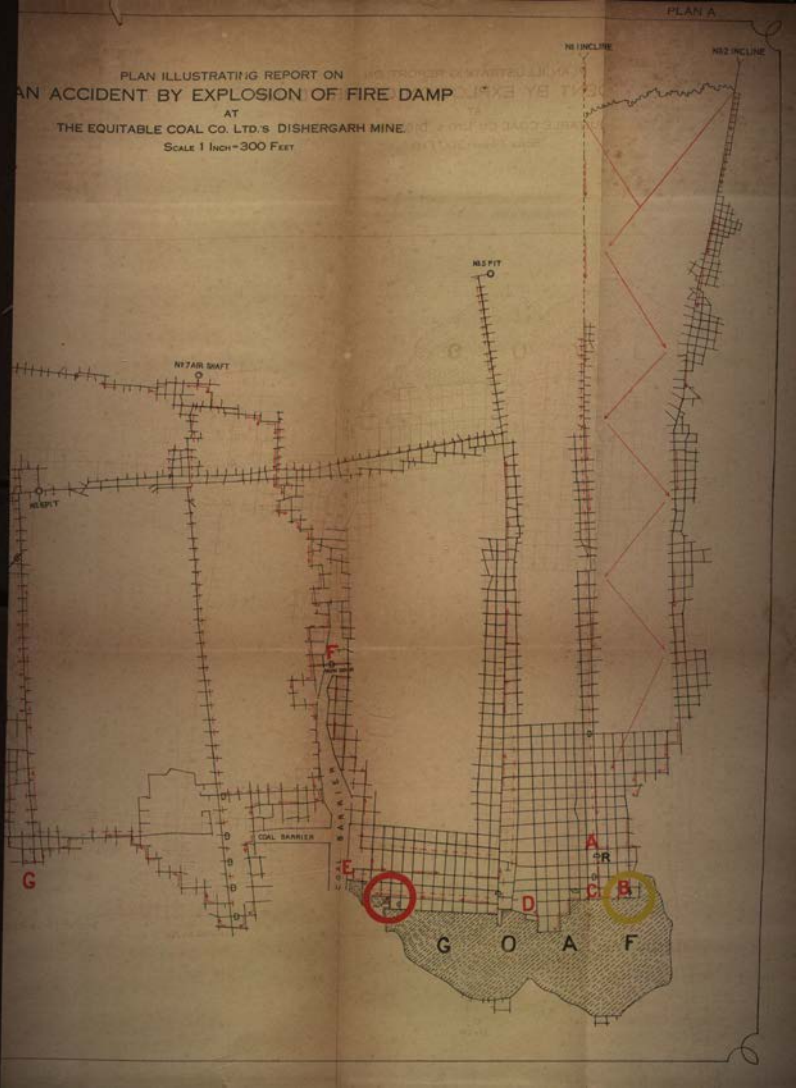
PLAN ILLUSTRATING REPORT ON

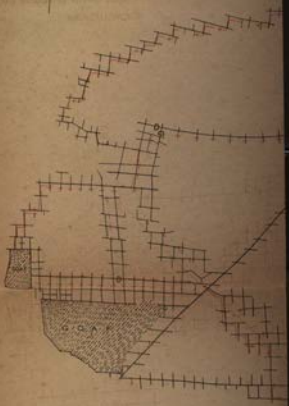
AN ACCIDENT BY EXPLOSION OF FIRE DAMP

AT

THE EQUITABLE COAL CO. LTD.'S DISHERGARH MINE.

SCALE 1 INCH = 300 FEET





REFERENCES

Air stoppings shown thus _ _ _ _ _ _ _ _

Doors shown thus _ _ _ _ _ _ _ _ _ _ D

Direction of air current shown thus ——→

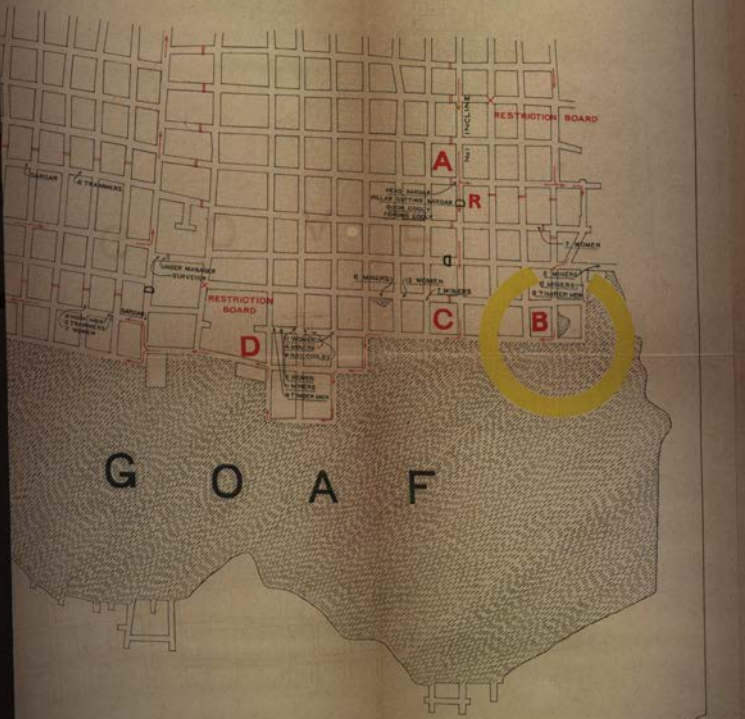
PLAN ILLUSTRATING REPORT ON

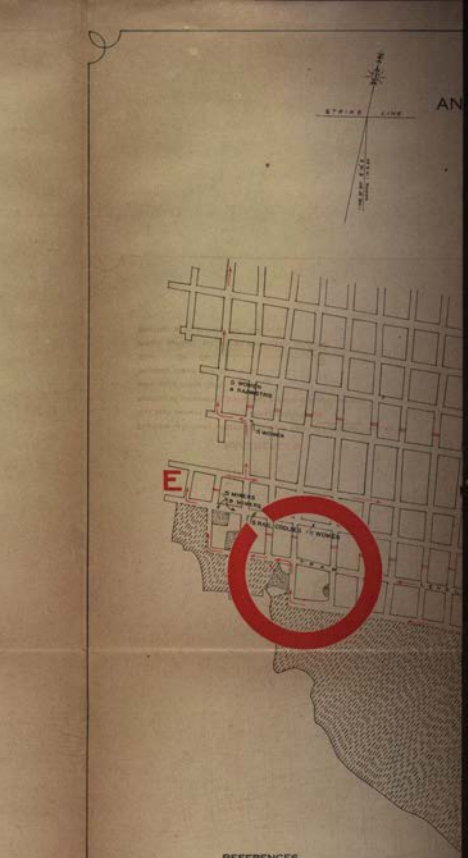
ACCIDENT BY EXPLOSION OF FIRE DAMP

AT

THE EQUITABLE COAL CO. LTD.'S DISHERGARH MINE.

SCALE 1 INCH = 100 FEET.





REFERENCES.

Positions of persons underlined in black thus:—"7 Women" indicate that such persons were using locked safety lamps.

Position of persons not underlined indicate that such persons were using naked lights.

Stopping shown thus

Door Do. Do.

Pillars partially got shown thus.

Direction of air current Do. Do.

PLAN ILLUSTRATING REPORT ON

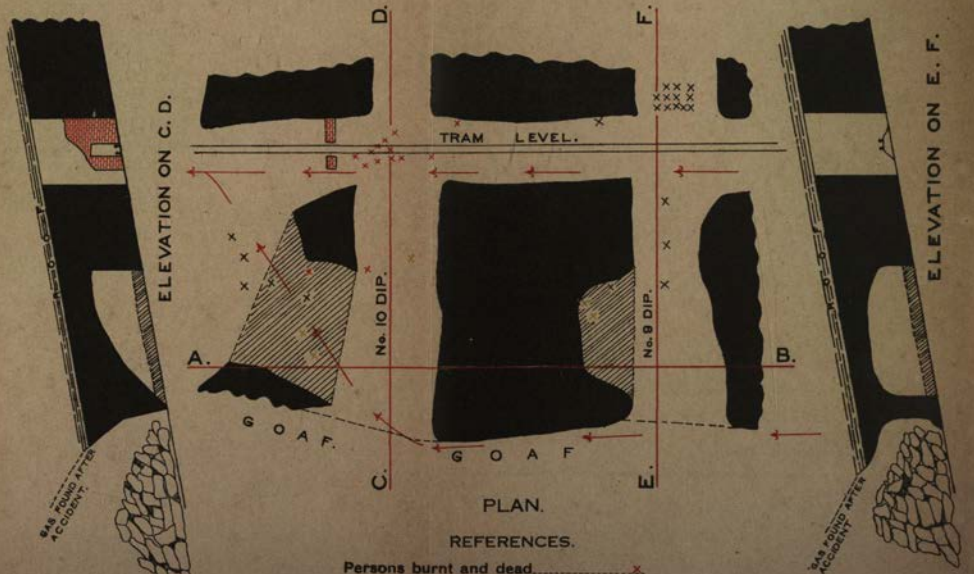
AN ACCIDENT BY EXPLOSION OF FIRE DAMP

AT

THE EQUITABLE COAL CO. LTD.'S DISHERGARH MINE.

SCALE 1 INCH = 20 FEET.

SECTION ON A. B.



PLAN.

REFERENCES.

Persons burnt and dead.....

Do. do. and still living.....

Do. uninjured.....

Floor coal and dust.....

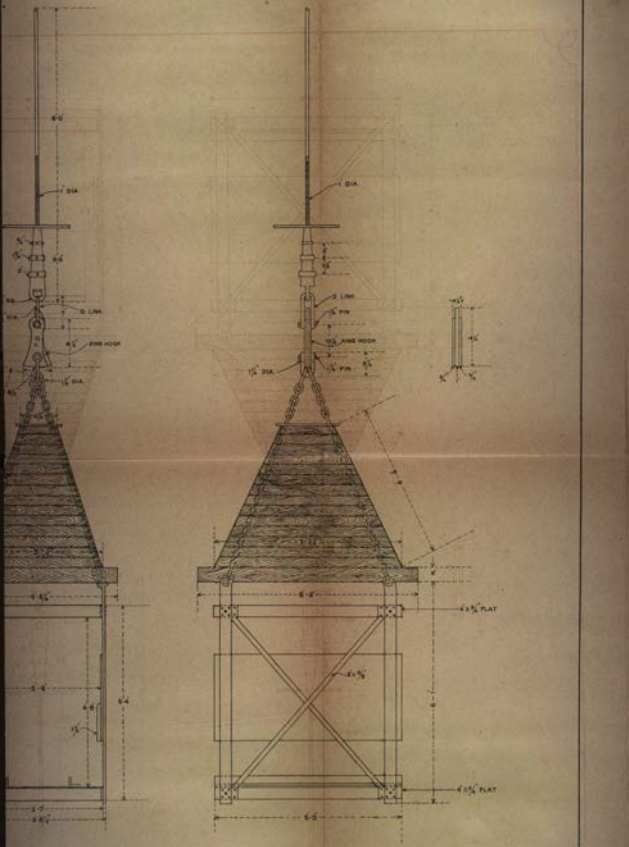
PLAN ILLUSTRATING REPORT ON

AN ACCIDENT IN A SHAFT

AT

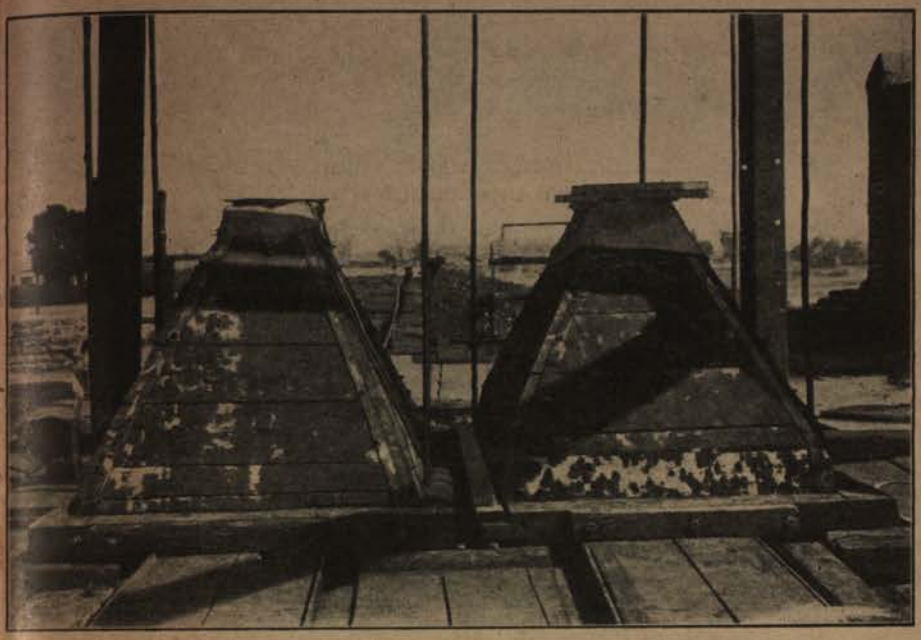
THE BENGAL COAL Co. LTD.'S SITALPUR MINE.

SCALE 3/4 INCH = 1 FOOT.



SITALPUR CAGE ACCIDENT.

PHOTO 1.



BONNETS AT PIT TOP

PHOTO 2.

Left.—END OF ROPE AFTER BEING RELEASED FROM CAPEL WITH RINGS AND WOODEN DISC.

Right.—CAPEL AND KING HOOK.

APPENDIX I.

STATISTICS OF MINES AND MINERALS.

Table No. 1.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1916.

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Below ground.				Above ground.				
								Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							A.—COAL.									
							Tons									
Assam	Lakhimpur	7	4	3	7	23	283,830	1,572	233	...	1,805	497	261	48	806	2,611
	Naga Hills	1	...	1	1	2	3,135	52	...	...	52	117	14	...	131	183
	Total	8	4	4	8	25	286,965	1,624	233	...	1,857	614	275	48	937	2,794
Baluchistan	Kalat	5	...	5	1	1	2,763	55	...	...	55	41	...	...	41	96
	Loralai	1	...	1	...	...	87	12	...	...	12	8	...	...	8	20
	Quetta-Pishin	9	...	9	...	...	6,318	86	...	...	86	41	...	...	41	127
	Sibi-Khost	7	2	5	5	10	32,995	541	...	...	541	302	...	25	327	868
	Total	22	2	20	6	11	42,163	694	...	...	694	392	...	25	417	1,111
Bengal	Bankura, Raniganj	2	...	2	1	1	6,965	41	22	...	63	28	13	...	41	104
	Birbhum „	1	...	1	...	...	2,055	10	7	...	17	10	2	...	12	29
	Burdwan „	166	140	26	143	309	4,983,356	17,551	10,089	135	27,775	9,457	5,325	350	15,132	42,907
	Total	169	140	29	144	310	4,992,376	17,602	10,118	135	27,855	9,495	5,340	350	15,185	43,040

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1916—*contd.*

Province	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							A.—COAL—*contd.* Tons.									
Bihar and Orissa	Hazaribagh: Bokaro-Ramgarh	7	1	6	2	5	192,365	821	756	2	1,579	382	97	...	479	2,058
	Hazaribagh: Giridih	9	4	5	6	13	866,055	5,035	1,972	...	7,007	2,082	883	4	2,969	9,976
	Hazaribagh: Jharia	5	3	2	5	9	32,988	145	88	6	239	111	42	5	158	397
	Manbhum: Jharia	249	156	93	172	333	8,917,330	24,598	19,901	363	44,862	17,774	7,577	1,362	26,713	71,575
	Manbhum: Raniganj	67	9	58	63	79	541,404	2,200	1,232	2	3,434	1,453	739	63	2,255	5,689
	Palamau, Daltonganj	1	1	...	1	2	76,298	266	160	19	445	282	50	35	367	812
	Sambalpur, Hingir-Rampur	1	1	...	...	...	59,737	341	183	...	524	189	27	14	230	754
	Sonthal Parganas: Jainty	1	1	...	1	1	74,518	131	170	...	301	215	45	14	274	575
	Sonthal Parganas: Raniganj	4	...	4	...	...	1,527	22	12	...	34	9	21	...	30	64
	Total	344	176	168	250	442	10,762,222	33,559	24,474	392	58,425	22,197	9,481	1,497	33,475	91,900
Central Provinces	Chanda, Ballarpur	3	2	1	3	4	84,889	533	21	2	556	265	66	3	334	890
	Chhindwara, Pench Valley	7	7	...	3	4	154,548	754	280	49	1,083	218	135	41	394	1,477
	Narsinghpur, Mohpani	1	1	..	1	3	48,395	501	220	...	721	416	51	...	467	1,188
	Yeotmal	1	...	1	...	...	...	1	...	...	1	2	...	...	2	3
	Total	12	10	2	7	11	287,832	1,789	521	51	2,361	901	252	44	1,197	3,558

North-West Frontier Province.	Hazara	1	...	1	...	...	75	7	...	...	7	...	...	...	...	7
Panjab	Jhelum	6	...	6	6	8	44,944	631	...	5	636	299	...	8	307	943
	Mianwali	1	...	1	...	...	817	8	...	...	8	7	...	...	7	15
	Shahpur	2	...	2	1	1	1,688	43	...	...	43	48	...	...	48	91
	TOTAL	9	...	9	7	9	47,449	682	...	5	687	354	...	8	362	1,049
	GRAND TOTAL (COAL) FOR 1916.	565	332	233	422	808	16,419,082	55,957	35,346	583	91,886	34,253	15,348	1,972	51,573	143,459
	" " OF PRECEDING YEAR.	583	334	249	429	884	16,352,480	59,111	35,596	806	95,513	32,195	15,814	2,015	50,024	145,537
	DIFFERENCE	−18	−2	−16	−7	−76	+66,602	−3,154	−250	−223	−3,627	+2,058	−466	−43	+1,549	−2,078
	B.—MICA.															
							Cwts.									
Bihar and Orissa	Bhagalpur	1	...	1	...	...	19	15	8	...	23	...	...	...	...	23
	Gaya	44	5	39	...	...	4,749	713	370	90	1,173	305	240	172	717	1,890
	Hazaribagh	285	35	250	35	35	14,141	3,489	2,001	693	6,183	1,814	970	676	3,460	9,643
	Monghyr	7	5	2	1	2	524	138	78	21	237	43	52	42	137	374
	TOTAL	337	45	292	36	37	19,433	4,355	2,457	804	7,616	2,162	1,262	890	4,314	11,930
Madras	Nellore	102	15	87	39	39	15,552	1,787	1,170	206	3,163	516	325	197	1,038	4,201
	Salem	1	...	1	...	...	106	14	...	...	14	21	17	1	39	53
	TOTAL	103	15	88	39	39	15,658	1,801	1,170	206	3,177	537	342	198	1,077	4,254

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1916—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							B.—MICA—*contd.* Cwts.									
Rajputana	Ajmer-Merwara	11	...	11	...	...	826	207	44	17	268	31	...	...	31	299
	Nasirabad	1	...	1	...	...	61	4	3	...	7	1	...	...	1	8
	TOTAL	12	...	12	...	...	887	211	47	17	275	32	..	...	32	307
	GRAND TOTAL (MICA) FOR 1916.	452	60	392	75	76	35,978	6,367	3,674	1,027	11,068	2,731	1,604	1,088	5,423	16,491
	„ „ OF PRECEDING YEAR.	366	13	353	34	35	24,063	3,865	2,179	474	6,518	1,751	1,617	905	4,273	10,791
	DIFFERENCE	+86	+47	+39	+41	+41	+11,915	+2,502	+1,495	+553	+4,550	+980	-13	+183	+1,150	+5,700
							C.—MANGANESE. Tons.									
Bombay	Belgaum	1	...	1	...	...	1,765	63	93	...	156	32	20	...	52	208
	Panch Mahals	2	2	...	2	3	46,160	800	355	124	1,279	223	50	12	285	1,564
	TOTAL	3	2	1	2	3	47,925	863	448	124	1,435	255	70	12	337	1,772
Central Provinces	Balaghat	16	...	16	16	16	241,771	2,643	2,047	100	4,790	502	334	51	887	5,677
	Bhandara	11	...	11	5	5	74,882	686	555	31	1,272	323	199	62	584	1,856
	Chhindwara	2	1	1	2	3	53,882	692	678	18	1,388	202	43	9	254	1,642
	Jabalpur	1	...	1	...	...	270	7	7	...	14	...	...	...	...	14
	Nagpur	24	1	23	17	18	146,547	1,657	1,436	11	3,104	652	471	57	1,180	4,284
	TOTAL	54	2	52	40	42	517,352	5,635	4,723	160	10,568	1,679	1,047	179	2,905	13,473

Madras	Vizagapatam . . .	5	...	5	2	2	2,755	121	84	...	205	59	21	8	88	293
	GRAND TOTAL (MANGANESE) FOR 1916.	62	4	58	44	47	568,032	6,669	5,255	284	12,208	1,993	1,138	199	3,330	15,538
	" " OF PRECEDING YEAR.	50	4	46	29	30	378,172	3,914	3,246	215	7,375	1,385	868	162	2,415	9,790
	DIFFERENCE . . .	+12	...	+12	+15	+17	+189,860	+2,755	+2,009	+69	+4,833	+608	+270	+37	+915	+5,748
							D.—LIMESTONE.									
							Tons.									
Central Provinces . .	Jabalpur, Katni . . .	34	5	29	14	15	44,905	369	697	26	1,092	203	196	34	433	1,525
Panjab	Hoshiarpur	1	...	1	...	...	385	59	...	...	59	45	...	...	45	104
	GRAND TOTAL (LIMESTONE) FOR 1916.	35	5	30	14	15	45,290	428	697	26	1,151	248	196	34	478	1,629
	" " OF PRECEDING YEAR.	26	4	22	...	...	64,179	537	911	25	1,473	169	228	37	434	1,907
	DIFFERENCE . .	+9	+1	+8	+14	+15	—18,889	—109	—214	+1	—322	+79	—32	—3	+44	—278
							E.—SALT.									
							Tons.									
Panjab	Jhelum	2	...	2	1	3	138,100	338	274	33	645	52	...	...	52	697
	Mianwali	1	...	1	1	2	12,881	62	...	15	77	...	...	...	...	77
	Shahpur	1	...	1	1	2	9,376	25	21	7	53	...	...	...	...	53
	GRAND TOTAL (SALT) FOR 1916.	4	...	4	3	7	160,357	425	295	55	775	52	...	...	52	827
	" " OF PRECEDING YEAR.	4	...	4	4	7	144,770	478	345	57	880	38	...	...	38	918
	DIFFERENCE . . .	...	...	...	—1	...	+15,587	—53	—50	—2	—105	+14	...	...	+14	—91

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1916—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							F.—GEMS.									
							(*a*)—Rubies. Carats.									
Burma	Mogok	...	...	...	...	...	136,783									
							(*b*) Sapphires.									
	Mogok	2	2	...	...	...	34,100	659	...	...	659	543	...	...	543	1,202
							(*c*) Spinels.									
	Mogok	...	...	...	...	...	38,841									
	TOTAL	2	2	...	...	...	209,724	659	...	...	659	543	...	...	543	1,202
	GRAND TOTAL (GEMS) FOR 1916.	2	2	...	...	...	209,724	659	...	...	659	543	...	...	543	1,202
	" " OF PRECEDING YEAR.	3	3	...	...	...	251,449	551	...	...	551	421	...	...	421	972
	DIFFERENCE	—1	—1	...	...	...	—41,725	+108	...	...	+108	+122	...	...	+122	+230
							G.—SLATE. Tons.									
Bihar and Orissa	Monghyr	4	...	4	...	...	2,136	138	42	...	180	49	..	...	49	229
Panjab	Gurdaspur	1	...	1	...	...	69	...	...	...	...	17	...	...	17	17
	Gurgaon	4	...	4	...	...	1,361	91	...	28	119	9	...	2	11	130
	Kangra	5	...	5	...	...	5,778	195	...	...	195	60	77	37	174	369

	TOTAL .	10	...	10	...	...	7,208	286	...	28	314	36	77	39	202	516
	GRAND TOTAL (SLATE) FOR 1916.	14	...	14	...	...	9,344	424	42	28	494	135	77	39	251	745
	" " OF PRECEDING YEAR.	15	...	15	3	3	10,610	391	94	110	595	226	12	18	256	851
	DIFFERENCE . . .	—1	...	—1	—3	—3	—1,266	+33	—52	—82	—101	—91	+65	+21	—5	—106
							H.—GOLD.									
							Ozs.									
Bihar and Orissa . .	Singhbhum . . .	1	...	1	...	...	364	30	18	3	51	30	19	17	66	117
Madras	Anantapur	3	3	...	3	7	22,371	931	...	...	931	728	147	131	1,006	1,937
	GRAND TOTAL (GOLD) FOR 1916.	4	3	1	3	7	23,235	961	18	3	982	758	166	148	1,072	2,054
	" " OF PRECEDING YEAR.	5	4	1	3	5	24,320	975	32	...	1,007	833	181	142	1,156	2,163
	DIFFERENCE . . .	—1	—1	...	...	+2	—1,085	—14	—14	+3	—25	—75	—15	+6	—84	—109
							I.—IRON ORE.									
							Tons.									
Bihar and Orissa . .	Puri	1	1	...	...	...	55	...	...	...	...	19	...	...	19	19
	Singhbhum	1	1	...	...	...	142,185	456	309	35	800	207	65	...	272	1,072
	TOTAL .	2	2	...	...	...	142,240	456	309	35	800	226	65	...	291	1,091
Central Provinces . .	Jabalpur	1	...	1	...	...	366	...	...	...	...	30	36	8	74	74
	GRAND TOTAL (IRON) FOR 1916.	3	2	1	...	...	142,606	456	309	35	800	256	101	8	365	1,165
	" " OF PRECEDING YEAR.	3	2	1	...	...	126,617	445	266	37	748	160	35	28	223	971
	DIFFERENCE . . .	...	...	...	...	...	+15,989	+11	+43	—2	+52	+96	+66	—20	+142	+194

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1916—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							J.—WOLFRAM. Cwts.									
Bihar and Orissa	Singhbhum	1	1	...	...	...	160	16	12	...	28	6	26	...	32	60
Burma	Mergui	1	...	1	...	...	3,776	200	...	...	200	65	30	6	101	301
	Tavoy	78	2	76	60	128	53,676	3,631	14	1	3,646	3,705	215	10	3,930	7,576
	Thaton	9	...	9	...	...	1,455	446	76	26	548	111	36	7	154	702
	TOTAL	88	2	86	60	128	58,907	4,277	90	27	4,394	3,881	281	23	4,185	8,579
Central Provinces	Nagpur	1	...	1	...	...	27	9	7	...	16	2	3	...	5	21
	GRAND TOTAL (WOLFRAM) FOR 1916.	90	3	87	60	128	59,094	4,302	109	27	4,438	3,889	310	23	4,222	8,660
	" " OF PRECEDING YEAR.	38	1	37	...	...	39,432	1,740	1	...	1,741	1,336	110	...	1,446	3,187
	DIFFERENCE	+52	+2	+50	+60	+128	+19,662	+2,562	+108	+27	+2,697	+2,553	+200	+23	+2,776	+5,473

K.—MAGNESITE.

Tons.

Madras	Salem	2	...	2	2	2	17,540	382	462	479	1,323	77	11	29	117	1,440
	TOTAL OF PRECEDING YEAR	2	...	2	...	...	7,450	198	169	133	500	74	...	28	102	602
	DIFFERENCE	...	...	...	+2	+2	+10,090	+184	+293	+346	+823	+3	+11	+1	+15	+838

L.—CHROMITE.

Cwts.

Baluchistan	Quetta-Pishin	2	2	...	...	...	340	21	...	...	21	14	...	...	14	35
	Zhob	7	...	7	...	...	69,600	...	...	...	...	439	...	...	439	439
	TOTAL	9	2	7	...	...	69,940	21	...	...	21	453	...	...	453	474
Bihar and Orissa	Singhbhum	2	...	2	...	...	30,140	158	208	29	395	28	...	...	28	423
	GRAND TOTAL (CHROMITE) FOR 1916.	11	2	9	...	...	100,080	179	208	29	416	481	...	...	481	897
	TOTAL OF PRECEDING YEAR	6	1	5	...	...	29,300	54	...	...	54	31	...	...	31	85
	DIFFERENCE	+5	+1	+4	...	...	+70,780	+125	+208	+29	+362	+450	...	...	+450	+812

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1916—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							M.—COPPER ORE.									
							Tons.									
Bihar and Orissa	Singhbhum	2	1	1	...	...	2,173	168	...	...	168	569	183	42	794	962
Burma	Katha	1	...	1	...	...	498	19	...	...	19	16	...	...	16	35
	Kyaukse	1	...	1	...	...	...	30	...	...	30	40	10	...	50	80
	Lower Chindwin	2	...	2	...	...	...	128	...	...	128	35	5	...	40	168
	TOTAL	4	...	4	...	...	498	177	...	...	177	91	15	...	106	283
	GRAND TOTAL (COPPER) FOR 1916	6	1	5	...	...	2,671	345	...	...	345	660	198	42	900	1,245
	TOTAL OF PRECEDING YEAR	5	1	4	1	5	8,010	714	...	...	714	975	157	...	1,132	1,846
	DIFFERENCE	+1	...	+1	−1	−5	−5,339	−369	...	...	−369	−315	+41	+42	−232	−601
							N.—BAUXITE.									
							Cwts.									
Central Provinces	Jabalpur	1	...	1	1	1	15,000	15	17	...	32	7	...	...	7	39
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	17,520	20	18	...	38	3	...	...	3	41
	DIFFERENCE	...	...	...	+1	+1	−2,520	−5	−1	...	−6	+4	...	...	+4	−2

O.—CLAY.																	
							Tons.										
Bihar and Orissa	Manbhum	3	...	3	...	...	344	21	3	...	24	26	12	...	38	62
	Palamau	1	...	1	...	...	1,934	5	4	1	10	9	10	2	21	31
	TOTAL	4	...	4	...	...	2,278	26	7	1	34	35	22	2	59	93
Central Provinces	Jabalpur	7	1	6	4	4	30,625	93	138	13	244	35	6	3	44	288
Delhi	Delhi	1	...	1	...	...	3,214	...	...	...	...	...	...	...	...	...*
	GRAND TOTAL (CLAY) FOR 1916.	12	1	11	4	4	36,117	119	145	14	278	70	28	5	103	381
	TOTAL OF PRECEDING YEAR	6	1	5	...	...	32,428	91	155	8	254	61	24	5	90	344
	DIFFERENCE	+6	...	+6	+4	+4	+3,689	+28	—10	+6	+24	+9	+4	...	+13	+37
P.—GALENA.																	
							Cwts.										
Central Provinces	Drug	1	...	1	...	...	140	10	20	...	30	2	25	...	27	57
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	140	5	20	...	25	2	10	...	12	37
	DIFFERENCE	...	...	...	...	...	...	+5	...	...	+5	...	+15	...	+15	+20
Q.—TIN.																	
							Cwts.										
Bihar and Orissa	Hazaribagh	1	...	1	...	...	...	...	...	...	...	3	...	...	3	3
Burma	Mergui	1	...	1	...	...	13	...	...	...	...	52	...	...	52	52
	Tavoy	3	1	2	...	...	344	70	...	...	70	...	...	...	...	70
	Thaton	1	...	1	...	...	900	...	...	...	..	500	900	100	1,500	1,500
	TOTAL	5	1	4	...	...	1,757	70	...	...	70	552	900	100	1,552	1,622
	GRAND TOTAL (TIN) FOR 1916.	6	1	5	...	...	1,757	70	...	...	70	555	900	100	1,555	1,625
	" " OF PRECEDING YEAR.	5	...	5	...	...	280	30	1	...	31	2	1	...	3	34
	DIFFERENCE	+1	+1	...	...	...	+1,477	+40	—1	...	+39	+553	+899	+100	+1,552	+1,591

* Labour figures received too late to be entered in the statistics.

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1916—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	Grand total below and above ground.
					R.—STEATITE.		Cwts.									
Central Provinces	Jabalpur	5	...	5	1	1	17,835	91	81	5	177	49	43	12	104	281
Madras	Kurnool	1	...	1	...	...	209	3	7	...	10	5	2	...	7	17
	GRAND TOTAL FOR 1916	6	...	6	1	1	18,044	94	88	5	187	54	45	12	111	298
	" " OF PRECEDING YEAR.	1	...	1	...	...	...	...	...	...	...	6	6	...	12	12
	DIFFERENCE	+5	...	+5	+1	+1	+18,044	+94	+88	+5	+187	+48	+39	+12	+99	+286
					S.—FULLERS' EARTH.		Tons.									
Central Provinces	Jabalpur	1	...	1	1	1	179	...	...	...	...	...	...	...	...	...*
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	139	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	+1	+1	+40	...	...	...	...	...	...	...	...	...

* Labour figures included with those for Jabalpur limestone.

T.—SILVER.																
							Oz.									
Madras	Anantapur	...	...	...	...	...	1,362	...	...	...	...	...	...	...	...	...*
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	512	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	...	...	+850	...	...	...	...	...	...	...	...	...
U.—GRAPHITE.																
							Cwts.									
Rajputana	Ajmer-Merwara	3	...	3	...	...	21,328	118	19	...	137	11	4	...	15	152
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE	+3	...	+3	...	...	+21,328	+118	+19	...	+137	+11	+4	...	+15	+152
V.—MOLYBDENITE.																
							Cwts.									
Burma	Tavoy	2	...	2	...	...	8	10	...	...	10	5	...	...	5	15
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE	+2	...	+2	...	...	+8	+10	...	...	+10	+5	...	...	+5	+15

* Won from Anantapur gold mines.

STATISTICS OF MINES AND MINERALS—*concld.*

Table No. 1—*concld.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1916—*concld.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							W. TITANIUM.									
Burma	Thaton	1	...	1	...	...	Tons. 2	...	...	...	...	...	...	...	...	...*
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE	+ 1	...	+ 1	...	...	+ 2	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (ALL MINERALS) 1916.	1,283	416	867	630	1,097	Tons. 17,401,220 Cwts. 251,429 Carats. 209,724 Troy ounces. 24,597	77,990	46,704	2,595	127,289	46,780	20,151	3,699	70,630	197,919
	GRAND TOTAL OF PRECEDING YEAR.	1,121	368	753	503	969	Tons. 17,124,855 Cwts. 110,734 lbs. 84 Carats. 251,449 Troy ounces. 24,832	73,119	43,033	1,865	118,017	39,668	19,063	3,340	62,071	180,088
	DIFFERENCE	+162	+48	+114	+127	+128	Tons. +276,365 Cwts. +140,695 Carats. —41,725 Troy ounces. —235	+4,871	+3,671	+730	+9,272	+7,112	+1,088	+359	+8,559	+17,831

* Figures included with those of Thaton wolfram mines.

Table 2.

Analysis of figures relating to output of coal.

Province.	District and mineral field.	Opening stocks.		Raisings.		Total.		Despatches.		Colliery Consumption.		Coal delivered to coking.		Closing stocks.		Coke made.	
		Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Hard coke.	Soft coke.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Assam	Lakhimpur	...	...	283,275	555	283,275	555	280,437	355	2,081	...	467	...	290	200	156	...
	Naga Hills	3,650	...	3,135	...	6,785	...	...	...	...	...	...	...	6,785	...	...	...
	Total	3,650	...	286,410	555	290,060	555	280,437	355	2,081	...	467	...	7,075	200	156	...
Baluchistan	Kalat	...	...	2,138	625	2,138	625	2,089	579	...	...	...	...	49	46	...	...
	Loralai	10	...	87	...	97	...	97	...	...	...	...	...	...	...	...	...
	Quetta-Pishin	140	488	458	5,860	598	6,348	410	5,550	...	...	...	...	188	798	...	...
	Sibi-Khost	421	1,371	10,659	22,836	11,080	23,707	10,886	19,046	126	4,263	...	...	68	398	...	...
	Total	571	1,859	13,342	28,821	13,913	30,680	13,482	25,175	126	4,263	...	...	305	1,242	...	...
Bengal	Bankura-Raniganj	91	900	6,524	441	6,615	1,341	6,456	282	155	400	4	...	...	659	...	3
	Birbhum „	...	...	1,675	380	1,675	380	1,675	61	...	319	...	...	...	...	...	...
	Burdwan „	346,275	155,434	4,008,519	974,837	4,354,794	1,130,271	4,103,022	541,234	75,425	498,009	118,075	7,880	58,272	83,148	2,453	79,019
	Total	346,366	156,334	4,016,718	975,658	4,363,084	1,131,992	4,111,153	541,577	75,580	498,728	118,079	7,880	58,272	83,807	2,453	79,022

APPENDIX I—*contd.*

Table 2—*concld.*

Analysis of figures relating to output of coal—concld.

Province.	District and mineral field.	Opening stocks.		Raisings.		Total.		Despatches.		Colliery consumption.		Coal delivered to coking.		Closing stocks.		Coke made.	
		Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Hard coke.	Soft coke.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bihar and Orissa	Hazaribagh—Bokaro Ramgarh	744	2,894	158,785	33,580	159,529	36,478	158,064	24,440	1,154	5,565	...	4,505	311	1,968	501	3,012
	Hazaribagh—Giridih	11,172	29,011	671,486	194,569	682,658	223,580	673,952	108,041	267	49,828	...	56,211	8,439	9,500	39,677	859
	Hazaribagh—Jharia	3,996	3,061	27,258	5,730	31,254	9,391	25,156	2,401	844	3,118	205	...	5,049	3,872	...	136
	Manbhum—Jharia	864,439	344,021	6,892,190	2,025,140	7,756,629	2,369,161	6,974,047	1,273,270	213,899	6,22,257	286,600	290,497	282,083	183,137	151,005	171,232
	Manbhum—Raniganj	61,673	15,435	416,809	124,595	478,482	140,030	332,974	75,926	20,367	45,178	93,823	8,777	31,318	10,149	...	69,911
	Palamau-Daltonganj	4,812	1,949	66,113	10,185	70,925	12,134	70,767	3,899	...	7,722	...	...	158	513	...	...
	Sambalpur-Hingir Rampur	740	...	44,684	15,053	45,424	15,053	42,282	4,857	3,123	10,196	..	...	19	...	...	...
	Santal-Parganas—Jainty	10,049	1,816	62,356	11,662	72,905	13,478	71,630	866	1,079	10,340	...	...	196	2,272	...	...
	Santal-Parganas—Raniganj	26	...	1,447	80	1,473	80	1,402	5	66	...	...	..	5	75	...	...
	TOTAL	957,651	398,791	8,341,628	2,420,594	9,299,279	2,819,385	8,350,274	1,493,705	240,799	754,204	380,628	359,990	327,578	211,486	191,183	245,150
Central Provinces	Chanda	...	13	61,391	23,498	61,391	23,511	60,686	11,736	610	11,463	...	...	95	312	...	...
	Chhindwara	3,625	433	117,099	37,449	120,724	37,882	120,257	19,610	...	17,412	...	...	467	860	...	...
	Narsinghpur	1,183	...	43,578	4,817	44,761	4,817	30,428	...	13,548	4,817	...	...	785	...	...	...
	TOTAL	4,808	446	222,068	65,764	226,876	66,210	211,371	31,346	14,158	33,692	...	...	1,347	1,172	...	...
North-West Frontier Province.	Hazara	..	...	...	75	...	75	...	75	...	...	...	...	...	...	...	...
Panjab	Jhelum	...	1,845	2,426	42,518	2,426	44,363	2,418	40,748	...	1,554	...	...	8	2,061	...	...
	Mianwali	...	...	25	792	25	792	25	380	...	...	..	...	...	412	...	...
	Shahpur	...	...	...	1,688	...	1,688	...	720	...	70	...	...	...	898	...	...
	TOTAL	...	1,845	2,451	44,998	2,451	46,843	2,443	41,848	...	1,624	...	...	8	3,371	...	...
	GRAND TOTAL	1,313,046	559,275	12,882,617	3,586,465	14,195,663	4,095,740	12,969,160	2,134,081	332,744	1,292,511	499,174	367,870	394,585	301,278	193,792	324,172

APPENDIX I—*contd.*

Table No. 3.

Number of mines opened and closed during the year ending 31st December 1916.

Province.	District.	Number of mines opened.	Number of mines closed.
	A.—COAL.		
Baluchistan	Kalat	2	...
	Quetta-Pishin	2	...
	Sibi-Khost	1	1
	Total	5	1
Bengal	Burdwan-Raniganj	14	8
Bihar and Orissa	Hazaribagh — Bokaro-Ramgarh	4	2
	Hazaribagh — Giridih	2	2
	Hazaribagh — Jharia	...	2
	Manbhum — Jhagia	21	11
	Manbhum — Raniganj	8	6
	Sonthal Parganas, Raniganj	2	1
	Total	37	24
Central Provinces	Chanda	...	1
Total (Coal)	...	56	34
	B.—MICA.		
Bihar and Orissa	Bhagalpur	1	...
	Gaya	13	3
	Hazaribagh	104	38
	Monghyr	1	4
	Total	119	45
Madras	Nellore	33	20
	Salem	1	...
	Total	34	20
Rajputana	Ajmer-Merwara	4	...
Total (Mica)	...	157	65

APPENDIX I—*contd.*

Table No. 3—*contd.*

Number of mines opened and closed during the year ending 31st December 1916—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
	C.—MANGANESE.		
Central Provinces	Balaghat	2	...
	Bhandara	4	1
	Nagpur	3	1
	Total	9	2
Madras	Vizagapatam	3	1
Total (Manganese)	...	12	3
	D.—LIMESTONE.		
Central Provinces	Jabalpur	8	17
Panjab	Hoshiarpur	1	...
Total (Limestone)	...	9	17
	E.—SLATE.		
Bihar and Orissa	Monghyr	...	1
	F.—IRON ORE.		
Central Provinces	Jabalpur	1	1
	G.—WOLFRAM.		
Bihar and Orissa	Singhbhum	1	...
Burma	Tavoy	54	10
	Thaton	7	2
	Total	61	12
Central Provinces	Nagpur	1	1
Total (Wolfram)	...	63	13

APPENDIX I—*contd.*

Table No. 3—*concld.*

Number of mines opened and closed during the year ending 31st December 1916—*concld.*

Province.	District.	Number of mines opened.	Number of mines closed.
	H.—CHROMITE.		
Baluchistan	Quetta-Pishin	1	...
Bihar and Orissa	Singhbhum	2	...
Total (Chromite)	.....	3	...
	I.—COPPER.		
Burma	Katha	...	1
	Lower Chindwin	...	2
Total (Copper)	.....	...	3
	J.—CLAY.		
Bihar and Orissa	Manbhum	1	2
Central Provinces	Jabalpur	1	...
Total (Clay)	.....	2	2
	K.—GALENA.		
Central Provinces	Drug	1	1
	L.—TIN.		
Burma	Mergui	1	...
	Tavoy	1	...
	Thaton	1	...
Total (Tin)	.....	3	...
	M.—STEATITE.		
Central Provinces	Jabalpur	2	1
	N.—GRAPHITE.		
Rajputana	Ajmer-Merwara	2	...
GRAND TOTAL (all mines)	.....	311	141

APPENDIX I—*concld.*

Table No. 4.

The following table shows the fluctuations in the output of the principal minerals raised from mines classed under the Indian Mines Act, 1901. The other minerals raised are gems, slate, iron ore, magnesite, chromite, tin, steatite, clay, galena, bauxite, fuller's earth, silver, graphite, molybdenite and titanium.

Year.	Coal.	Manganese.	Mica.	Limestone.	Salt.	Wolfram.	Gold.	Copper ore.
	Tons.	Tons.	Cwts.	Tons.	Tons.	Cwts.	Troy ozs.	Tons.
1907 . .	10,526,468	642,082	44,919	73,222	101,703	...	4,017	...
1908 . .	12,149,020	494,942	46,208	101,569	93,779	...	7,242	10
1909 . .	11,294,227	357,205	32,011	56,502	126,987	144	5,615	7
1910 .	11,387,716	468,669	21,375	81,258	119,867	18	3,269	864
1911 . .	12,048,726	441,426	31,686	92,692	124,603	8,394	8,277	2,079
1912 . .	14,044,368	423,464	41,660	91,784	131,233	25,401	7,269	8,984
1913 . .	15,486,318	637,391	43,650	71,359	138,540	27,520	11,019	3,639
1914 . .	15,727,631	555,672	38,189	146,505	135,518	31,526	19,873	4,400
1915 . .	16,352,480	378,172	24,063	64,179	144,770	39,432	24,320	8,010
1916 . .	16,419,082	568,032	35,978	45,290	160,357	59,094	23,235	2,671

Table No. 5.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rates during the years 1907 to 1916 in respect of coal mines under the Indian Mines Act, 1901 :—

Year.	Amount of coal raised.	Average number of persons working daily below and above ground.	Number of deaths below and above ground.	Death-rates.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above ground.
1907 . . .	10,526,468	102,689	89	8·45	·86
1908 . . .	12,149,020	120,107	164	13·49	1·36
1909 . . .	11,294,227	109,291	119	10·53	1·08
1910 . . .	11,387,716	105,285	160	14·05	1·52
1911 . . .	12,048,726	106,598	148	12·28	1·38
1912 . . .	14,044,368	121,392	157	11·17	1·29
1913 . . .	15,486,318	133,042	185	11·95	1·39
1914 . . .	15,727,631	137,851	145	9·22	1·05
1915 . . .	16,352,480	145,537	166	10·15	1·14
1916 . . .	16,419,082	143,459	169	10·29	1·18

APPENDIX II.

ACCIDENTS IN MINES.

Table No. 1.

List of Fatal Accidents in mines regulated by the Indian Mines Act, 1901, during the year 1916.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			EXPLOSIONS OF FIRE DAMP—*(14 deaths).*			
1	20th July, 10 A.M.	Dishergarh Mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Rupai Manjhi, (*m.*), 28, *Haulage attendant.* Nagra Manjhi, (*m.*), 14, *Coal-cutter.* Dhania Muchi, (*m.*), 28, *Propping carpenter's coolie.* Dayal Muchi, (*m.*), 27, *Propping carpenter.* Jogai Chamar, (*m.*), 29, Nunia Muchi, (*m.*), 25, Dashu Muchi, (*m.*), 24, *Propping carpenter's coolies.* Bhagal Chamar, (*m.*), 23, *Propping carpenter.* Dharma Dubey, (*m.*), 20, Shunker Dubey, (*m.*), 30, Niaman Singh, (*m.*), 28, *Propping carpenter's coolies.* Dukhi Manjhian, (*f.*), 25, *Coal-carrier.* Sarka Manjhi, (*m.*), 27, Narayan Manjhi, (*m.*), 38, *Coal-cutters.*	Coal	While work was going on in a pillar-cutting district a noise of falling stone was heard in the "goaf." This was followed shortly afterwards by an explosion by which eighteen persons were burnt of which the fourteen deceased succumbed to their injuries. Inspection and inquiry made. *See Report, page 6.*
			FALLS OF ROOF AND SIDES—*(81 deaths).* (*a*) **Falls of roof**—*(46 deaths).*			
2	7th January, 1-30 P.M.	West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Banka Bengali, (*m.*), 26, *Coal shoveller.*	Coal	Timbermen were putting in new bars at a point about 30 feet above the bottom of a self-acting incline, on a slope of 1 in 2. Deceased was 5 feet above the bottom of the slope and was shovelling coal, which had fallen from the roof before during repairing operations. Whilst they were so employed, coal fell from the side at a point 15 feet above the timbermen. Three large lumps rolled down the steep slope and struck deceased, killing him on the spot. Inspection and inquiry made.

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) **Falls of roof**—*contd.*			
3	7th January, 7 P.M.	Kendwadih Mine, Jamadoba P. O., Bihar and Orissa.	Hariladih Coal Co., Ld.	Chaiti Bilaspuri, (*f.*), 27, *Coal-carrier.*	Coal	Whilst deceased was loading a basket at the face in a pillar-cutting district, about half a ton of overhanging coal fell upon her from a height of 5 feet. She was killed on the spot. Inspection and inquiry made.
4	8th January, 11-30 A.M.	Kurhurbari Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Rakhni Rajwarin, (*f.*), 17, Rukni Rajwarin, (*f.*), 16, *Coal-carriers.*	Coal	Roof coal, measuring 5′ × 2′-9″ × 1′-3″ thick, fell from a height of 8 feet from a smooth "parting" in a gallery, and killed deceased outright. This coal had recently been exposed by dressing the side of the gallery. Inspection and inquiry made.
5	19th January, 5-30 P.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways & Trading Co., Ld.	Ganga Din Passi, (*m.*), 35, *Coal-cutter.*	Coal	Deceased and another miner, under the personal supervision of the European manager of the mine, were engaged in cutting down loose clay from the roof of an underground excavation, where a pump room was being made. A mass of nearly a ton of clay fell prematurely from "slips" in the roof. Deceased sustained injuries to which he succumbed on the following day. The manager had a narrow escape. Inspection and inquiry made.
6	20th January, 4-30 P.M.	Lutchipur Mine, Sitarampur P. O., Bengal.	Lutchipur Coal Co., Ld.	Jogdeo Bhar, (*m.*), 34, *Carpenter.*	Coal	Deceased entered a disused road against orders and drew some props from beneath a tender roof. In attempting to recover the bunter, a piece of roof stone, measuring 5′ × 5′ × 1′-9″, fell from a height of 4½ feet and killed him outright. Inspection and inquiry made.
7	25th January, 11 A.M.	Lutchipur Mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Roghbir Ahir, (*m.*), 28, *Deputy overman.*	Coal	Deceased and the head overman were standing at the edge of a "goaf," from which the timber had recently been drawn, listening for any movement of the roof, when a sudden collapse of the roof occurred, apparently without warning, killing the former outright and slightly injuring the latter. Inspection and inquiry made.
8	26th January, 10-30 P.M.	Ghusik Mine, Kalipahari P. O., Bengal.	Ghusik and Muslia Collieries, Ld.	Khepa Manjhi, (*m.*), 19, *Miner.* Sukhi Manjhian, (*f.*), 33, *Coal-carrier.*	Coal	A fall of roof, measuring 22′ × 6′ × 1′-7″ thick, fell from a height of 8 feet in a gallery and killed the two deceased outright. Another person was injured. The place was affected by "slips" and "joints" and was known to be dangerous. Precautions were taken but they proved to be inadequate. Inspection and inquiry made.
9	5th February, 5-30 P.M.	Kalikapur Mine, Bankulia P. O., Bengal.	R. M. Banerji & others	Mukundo Bauri, (*m.*), 35, *Miner.*	Coal	Deceased and his brother entered a fenced gallery to rob coal. While cutting the corner of a pillar, some roof coal, measuring 4′ × 2′ × 1′-3″ thick, fell from a height of 6½ feet upon them killing deceased outright and fracturing the right leg of his brother. Inspection and inquiry made.

10	17th February, 6 A.M.	Viceroy Mine, Charanpur P. O., Bengal.	Minto Coal Co., Ld.	Hiru Chamar, (*m.*), 28, *Miner.* Padum Manjhian, (*f.*), 14, *Coal-carrier.*	Coal	Some roof coal, measuring 19′ × 2′-9″ × 2′-4″ thick, fell upon the two deceased from a height of 13½ feet and inflicted injuries from the effects of which the man died half an hour later and the woman two days later. The overman was prosecuted by the management for breach of special rules and was fined Rs. 30 or three weeks' simple imprisonment. Inspection and inquiry made.
11	17th February, 4-30 P.M.	Jogta Mine, Sijua P. O., Bihar and Orissa.	Agabeg Brothers	Mohi Rai, (*m.*), 65, *Coal-cutter.*	Coal	Whilst cutting side coal in a gallery, 13 feet wide by 7½ feet high, deceased was killed by a fall of about 2 cwts. of coal and clay band, which fell from a "slip". Inspection and inquiry made.
12	21st February, 8-45 P.M.	Jamuria Mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Sukru Mahato, (*m.*), 25, Bhola Mahato, (*m.*), 35, *Miners.*	Coal	The two deceased and a companion had just commenced work on two small pillars at a goaf edge in a pillar cutting district, when a mass of roof, measuring 150′×75′×12′ thick, fell. The pillar at which Sukru was at work was crushed out. Bhola was struck by a falling prop. Both were killed instantly. The other man escaped with a slight cut on one of his feet. Inspection and inquiry made.
13	4th March, 3-30 P.M.	Bulliari Mine, Kustore P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Chetan Gope, (*m.*), 40, *Coal-cutter.*	Coal	Deceased was employed in a pillar-cutting district. He left his appointed working place, broke down a fence and began to cut coal near the edge of a "goaf." He was struck by a fall of about 1½ tons of coal, which fell from converging "slips" in the roof, 7 feet above. He died within an hour. Inspection and inquiry made.
14	5th March, 12-30 A.M.	Jamuria Mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Lharan Manjhi, (*m.*), 24, *Miner.*	Coal	Deceased, against the orders of the sirdar and in his absence, began to cut some top coal, when several pieces of stone and coal fell upon him. He was found lying under a piece of stone, measuring 5′×3′×1′ tapering to feather edges, with the ribs of his right side fractured. He died shortly afterwards from shock. Inspection and inquiry made.
15	6th March, 10-30 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Sorju Lohar, (*m.*), 26, *Loader.*	Coal	Deceased was struck by about 30 cwts of coal, which fell from the roof of an opening, 27′×30′ in area. He sustained serious injuries to his head and died twenty-four hours later. Inspection and inquiry made.
16	13th March, 12-30 P.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Chota Bulahi Meah, (*m.*), 45, *Deputy overman.*	Coal	Deceased was assisting the overman to draw timbers, prior to dropping roof coal, about 40′×40′×27′ thick. A portion of the coal, measuring about 12′×12′×27′ thick, came away suddenly and buried him. He was killed outright. Inspection and inquiry made.
17	26th March, 1 P.M.	Kendwadih Mine, Jamadoba P. O., Bihar and Orissa.	Hariladih Coal Co., Ld.	Jahani Rewat, (*m.*), 30, *Coal-cutter.*	Coal	In a pillar-cutting district in a coal seam 9 feet thick, a pillar, originally 45 feet square, had been split up into four "stooks," each 16 feet square. A gang of seven miners were engaged in extracting the last portion of one of these "stooks." They had reduced its dimensions to 4′×2′-6″ when it collapsed, and a slab of stone, 10′×5′×1′, fell from the roof, knocking out several of the thirty props set. Deceased was killed on the spot. Two other men were slightly injured, one of them being pinned down by the fallen stone. Inspection and inquiry made.
18	30th March, 5 P.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Kellu Mallah, (*m.*), 30, *Coal-cutter.*	Coal	When putting shot holes in a "knob" of coal supporting some roof coal, a piece of dyke stone, weighing about 3 cwts., fell upon deceased, as he was trying to escape. He died from the effects of his injuries an hour and a half later. Inspection and inquiry made.

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) **Falls of roof—*concld.***			
19	25th May, 1 P.M.	Angarpatra Mine, Katrasgarh P. O., Bihar and Orissa.	Angarpatra Colliery Co.	Ram Lal Bhuia, (*m.*), 35, *Coal cutter.*	Coal	Deceased entered a fenced gallery in a coal seam 6 feet thick and began to rob coal from the side. Whilst so engaged a triangular shaped area of roof shale, 13′×7′×2′ thick, fell from between two "slips." He was killed on the spot. Inspection and inquiry made.
20	1st June, 5 P.M.	Jairamdanga Mine, Asansol P. O., Bihar and Orissa.	New Beerbhum Coal Co., Ld.	Ganga Dayal Passi, (*m.*), 35, *Coal-cutter.*	Coal	Deceased went into a fenced off gallery to rob roof coal. Whilst so engaged, a mass, weighing about 80 lbs., fell upon him from a height of 15 feet. He died six hours later. Inspection and inquiry made.
21	6th June, 10 P.M.	Lodna Mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Manu Bhakta, (*m.*), 22, *Coal cutter.* Gurdayal Bhakta, (*m.*), 12, Jitni Bhaktin, (*f.*), 16, *Coal carriers.*	Coal	Whilst the three deceased were cutting coal in a gallery, 8 to 12 feet high and 10 feet wide, a mass of shale, 39′×7′×3′ thick, fell upon them from the roof. Manu and Jitni were killed instantly and Gurdayal's injuries were such that he died eight hours later. Two other persons were slightly injured. Inspection and inquiry made.
22	29th June, 1 A.M.	Faridpur Mine, Charanpur P. O., Bengal.	Poniati Coal Concern	Naku Kole, (*m.*), 22, *Coal-cutter.*	Coal	Deceased, in the legitimate absence of the sirdar, went behind a fence to cut roof coal in a gallery. Whilst so doing, a piece of stone, weighing about 100 lbs., fell upon him from a height of 8 feet. He died twenty-six hours later. Inspection and inquiry made.
23	10th July, 11-30 P.M.	West Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Ghambir Koiri, (*m.*), 35, *Loader.*	Coal	Deceased was loading baskets inside the opening, when about 3 tons of coal fell without warning from a height of 16 feet and struck him, causing severe injuries. He died three and a half months later. Inspection and inquiry made.
24	26th July, 4 P.M.	Kapasara Mine, Mugma P. O., Bihar and Orissa.	Jafar Yusuf & Sons	Kashi Kora, (*m.*), 13, *Coal-cutter.*	Coal	Deceased went through a fence and started to rob a pillar. A mass of overhanging coal, measuring 19′ long × 5′-6″ broad × 5′ thick, fell upon him and killed him instantly. Inspection and inquiry made.
25	3rd August, 6-30 A.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Mojidan Johlin, (*f.*), 15, *Coal-carrier.*	Coal	Five women were employed in a pillar extraction area. They passed through a fence and whilst they were loading coal, a fall of roof shale, 10′×10′×9″, occurred. Mojidan received internal injuries and died the same day. Another woman sustained fractures of the ribs and collar bone. Inspection and inquiry made.
26	19th August, 3-30 P.M.	Lakorka Mine, Katrasgarh P. O., Bihar and Orissa.	Lakorka Coal Co., Ld.	Jagannath Koiri, (*m.*), 43, *Sirdar.* Bharun Bhuia, (*m.*), 19, *Coal-cutter.*	Coal	In a pillar-cutting district a pillar had been reduced to a "knob," 6′ × 3′-6″, when the roof began to "weight." The sirdar withdrew the miners and took out about 30 props. After a while, as the roof did not fall, he reset several props near the "knob" and set two coal-cutters to work to further reduce the "knob." Whilst so engaged, roof stone, 12″ thick, fell over an area, 25′×30′, from which props had been removed. At the same time the same thickness of roof stone fell over an area, about

						8′×6′, on the other side of the "knob" falling upon the deceased and killing them on the spot. This smaller fall knocked out several props. Inspection and inquiry made.
27	23rd September, 12 Noon.	Khost Mine, Khost P. O., Baluchistan.	North-Western Railway	Ram Sarup, (*m.*), 28, *Carpenter's coolie.*	Coal	Deceased, another coolie and a carpenter were timbering the face of a level when a large fall of coal occurred burying deceased, whose body was recovered six days afterwards.
28	26th September, 8 A.M.	Central Dhurmaband Mine, Katrasgarh P. O., Bihar and Orissa.	Central Dhurmaband Coal Co., Ld.	Luchmi Burhi, (*m.*), 35, *Carpenter-mistri.*	Coal	Deceased was drawing timber in a "goaf" when a mass of roof coal, measuring approximately 12′ square and 9″ thick, fell without any warning. He was struck down and buried under the fall. Death must have been instantaneous. Inspection and inquiry made.
29	26th September, 2 P.M.	South Kustore Mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Kachari Roy, (*m.*), 34, *Coal-cutter.*	Coal	Deceased had opened a fence and was robbing the corner of a pillar. A mass of coal, measuring 12′×1′×1′-6″, fell from a height of 9 feet and killed him instantly. Inspection and inquiry made.
30	11th October, 12 Noon.	East Chandrabad Mine, Jharia P. O., Bihar and Orissa.	Ruplal Agarwala	Babi Bauri, (*f.*), 25, *Coal-carrier.*	Coal	Deceased went through a fence into a disused gallery. A fall of roof occurred and a piece of stone, measuring 2′-10″×2′-0″×6″, fell upon her from a height of 6 feet. She sustained a broken spine and injuries to her skull. Death was instantaneous. Inspection and inquiry made.
31	18th October, 8-30 A.M.	Khas Jharia Mine, Jharia P. O., Bihar and Orissa.	Ramjus Agarwala	Sarna Munda, (*f.*), 14, *Coal-carrier.*	Coal	Deceased walked under some overhanging coal, which was being undercut by a miner. A piece, measuring 2′-6″×1′-8″×1′-5″, broke away and fell from a height of 6 feet upon her. She sustained injuries to her spine and died in less than an hour. Inspection and inquiry made.
32	18th October, 5-30 P.M.	Jharia Khas Mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Sew Charan Passi, (*m.*), 45, *Coal-cutter.*	Coal	A mass of roof coal, weighing about 5 cwts., fell from a height of 25 feet on to the base of a pillar in course of extraction. It broke into small pieces, one of which struck deceased, who was sitting some distance away. He sustained injuries to his spine from which he died on the 24th December. Inspection and inquiry made.
33	19th October, 11-30 A.M.	New Sinidih Mine, Katrasgarh P. O., Bihar and Orissa.	New Sinidih Coal Co., Ld.	Butto Napit, (*m.*), 35, *Propping carpenter's coolie.*	Coal	A portion of soft ground, 30 feet inside the entrance of an incline, was being timbered. Deceased was making a hole in the side for a cross timber, when the roof suddenly caved in and buried him. Death was due to suffocation. Inspection and inquiry made.
34	19th October 2-30 P.M.	Kurhurbari Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Tipon Burhi, (*m.*), 25, *Coal-cutter.*	Coal	Deceased was loading coal in a gallery in which roof coal was being cut. Whilst so doing, a piece of coal, measuring 2′-6″×2′-9″, fell upon him from a height of 7 feet. He was killed instantly. Inspection and inquiry made.
35	8th November, 5 P.M.	Lower Joyrampur Mine, Jharia P. O., Bihar and Orissa.	Ghelabhai Panchan & Co.	Polu Bauri, (*m.*), 35, *Coal-cutter.*	Coal	Whilst deceased was cutting roof coal in a gallery, a slab of stone, measuring 5′×5′×6″ thick, fell from the roof, 11 feet above. He sustained injuries to which he succumbed an hour later. Inspection and inquiry made.
36	30th November, 9-45 P.M.	Sijua Mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ld.	Mangra Manjhi, (*m.*), 40, *Coal-cutter.*	Coal	Deceased was employed in splitting a pillar in a seam 9 feet thick. He went through a fence and began to cut coal from the corner of another pillar. Almost immediately an area of roof stone, 17′×10′×8″ thick, fell upon him. His skull was fractured and he died about an hour later. Inspection and inquiry made.
37	9th December, 8-45 P.M.	Jamuria Mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Dayal Meah, (*m.*), 24, Puna Meah, (*m.*), 25, Budhan Koiri, (*m.*), 30, Etwari Kole, (*m.*), 24, *Coal-cutters.*	Coal	Whilst engaged in loading fallen roof coal on the edge of a "goaf," the deceased were killed by a fall of roof stone which fell over a considerable area which could not be measured and which was 7 feet in thickness. Inspection and inquiry made. *See Report, page 8.*

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*b*) **Falls of side**—(*31 deaths*).			
38	4th January, 12 Midnight.	Sutikdih Mine, Bhujudih P. O., Bihar and Orissa.	Sutikdih Coal Co., Ld.	Baiju Rajwar, (*m.*), 30, *Coal-cutter.*	Coal	Deceased was employed in cutting floor coal in a gallery 15 feet high in a seam 26 feet thick. Against orders he undercut the side of a pillar and was killed on the spot by the fall of 1½ tons of coal. Inspection and inquiry made.
39	7th January, 11 A.M.	Borrea Mine, Sitarampur P. O., Bengal.	New Beerbhum Coal Co., Ld.	Bhutka Manjhi, (*m.*), 30, *Miner.*	Coal	Deceased was robbing coal from a pillar, situated in a fenced area, when a piece of overhanging coal, measuring 18′×6′×3′-6″ thick, fell from a height of 12½ feet and killed him outright. Inspection and inquiry made.
40	16th January, 6 P.M.	New Suratar Mine, Jharia P. O., Bihar and Orissa.	New Suratar Coal Co., Ld.	Chetu Mullick, (*m.*), 55, *Sirdar.*	Coal	Whilst testing the stability of the side of a gallery by sounding it with a stick, a lump of coal, about 80 lbs. in weight, fell upon his shoulder from a height of 8 feet. He sustained a fracture of the collar bone and internal injuries, and, although he was able to walk out of the mine, he died two and a half hours later. Inspection and inquiry made.
41	30th January, 11-30 A.M.	Hermyingyi Mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Yi Mong, (*m.*), 30, *Miner.*	Wolfram	Deceased was buried under several tons of earth, which fell from the side of an "open cut," and was killed instantly.
42	9th February, 1-10 P.M.	Paungdaw Mine, Tavoy P. O., Burma.	Martin and de Paulsen	Li Fook, (*m.*), 48, *Miner.*	Wolfram	As deceased was undermining the side of an "open cut" about two cubic yards of schist fell from the side, from a height of about 5 feet and killed him. *See Report, page 9.*
43	15th February, 10-30 A.M.	Bansdeopur Mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ld.	Jhalua Chamar, (*m.*), 30, *Coal-cutter.*	Coal	Deceased and three other miners were employed in splitting a pillar 19 feet high in a pillar-cutting district. The European assistant and the sirdar found their working place unsafe on account of unsound side coal and sent them out with instruction to work on floor coal in another gallery. Pending repairs the place was fenced. Deceased broke down the fence and entered the place. Whilst he was working there, he was killed on the spot by the fall of a slab of coal from the side, 9′×5′×0′ to 2′ thick, from a height of 12 feet. Inspection and inquiry made.
44	15th February, 12 Noon.	Bansdeopur Mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ld.	Rupan Chamar, (*m.*), 27, *Coal-carrier.* Ganu Chamar, (*m.*), 48, *Coal-cutter.*	Coal	Whilst Ganu was cutting floor coal in a pillar-cutting district, a triangular slab of coal, 9′ long by 2′ high and 1′-3″ thick, fell from the roof and side from a height of 20 feet. Both he and Rupan were killed on the spot. Inspection and inquiry made.

45	18th February, 5-15 P. M.	Kutchi Dhana Mine, Ramkona P. O., Central Provinces.	Indian Manganese Co., Ld.	Amyar Khan, (*m.*), 40, *Coolie.*	Manganese	Deceased was using a crowbar to remove a portion of rock from the overburden. He slipped and fell with the rock which probably struck him on its rebound. He received injuries from which he died three days later.
46	18th February, 10-30 P.M.	Lodna Mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Sukar Mani Korin, (*f.*), 45, *Coal-carrier.*	Coal	In a floor-cutting district two coal cutters were employed on a ladder in dressing down overhanging side coal from a pillar 20 feet high. Deceased loaded the coal which they cut and carried it away in baskets. Whilst she was loading a basket, a mass of about 2 cwts. of coal, fell prematurely from the side. She was struck by the falling coal and sustained injuries to which she succumbed shortly after. Inspection and inquiry made.
47	17th March, 12-30 P.M.	East Ledo Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Samaru, (*m.*), 30, *Coal-shoveller.*	Coal	A piece of side coal fell from the side of a "fault" and crushed deceased against the side of the gallery in which he was shovelling coal. He died from internal injuries. Inspection and inquiry made.
48	23rd March, 4-30 A.M.	Kajora Mine, Ondal P. O., Bengal.	Kajora Coal Co., Ld.	Khudia Passi, (*m.*), 25, *Miner.*	Coal	While the side of a main gallery was being undercut to widen it, the undercut portion, measuring $7' \times 4'\text{-}3'' \times 9''$ thick, fell and pinned deceased against the opposite side of the gallery, which was only 4 feet wide. He received injuries from which he died seventeen hours later. Inspection and inquiry made.
49	13th April, 2-30 P.M.	Baraboni Mine, Asansol P. O., Bengal.	Baraboni Coal Concern, Ld.	Surja Marandi, (*m.*), 35, *Overman.*	Coal	Deceased was supervising the removal of side coal, measuring $17' \times 8' \times 1'\text{-}6''$ thick, when it fell unexpectedly and a small portion struck him. He died from the effects of his injuries two hours later. Inspection and inquiry made.
50	27th April, 11-30 P.M.	Jharia Khas Mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Kessu Nazra, (*m.*), 36, *Coal-cutter.*	Coal	Deceased worked in a pillar-cutting district. He broke down a fence, entered the "goaf" and began to cut coal from the corner of a pillar, which had been reduced to $20' \times 10' \times 2\frac{1}{2}'$ high and abandoned a fortnight previously. Whilst so engaged, a mass of side coal, exceeding 4 tons in weight, fell upon him from the corner of the pillar from a height of 8 feet. Death must have been instantaneous. Inspection and inquiry made.
51	20th May, 2 P.M.	Joyramdanga Mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Pram Gope, (*m.*), 30, *Propping mistri.*	Coal	Deceased was sitting in a gallery cutting timber, when a piece of side coal fell and knocked out a prop. The falling prop struck him and threw him forward upon a stone, which smashed the frontal bone of his head. He died six hours later without having regained consciousness. Inspection and inquiry made.
52	1st June, 12-30 P.M.	Huntodih Mine, Mohoda P. O., Bihar and Orissa.	Huntodih Coal Co., Ld.	Chottu Bauri, (*m.*), 20, *Coal-cutter.*	Coal	Deceased whilst at work in the face of a gallery in a seam 6 feet thick, rising at an angle of 1 in 5, was killed by a mass of 15 cwts. of coal, which fell from two converging "slips" in the face. Before the accident the "slips" could not be seen. Inspection and inquiry made.
53	8th June, 10 A.M.	Bhor Mine, Quetta P. O., Baluchistan.	Sirdar Bhawal Khan	Taj Mahomed, (*m.*), 19, *Coolie.*	Coal	Whilst deceased and another man were filling bags of coal, which had been extracted on the previous evening, a fall of roof and sides occurred killing deceased and slightly injuring the other man.
54	14th June, 2-30 P.M.	Pagaye Mine, Tavoy P. O., Burma.	Rangoon Mining Co., Ld.	Horel, (*m.*), 30, *Tribute worker.*	Wolfram	Deceased was buried up to the waist by a fall of earth in an "open work." He was rendered unconscious and died that evening probably from shock. Inspection and inquiry made.
55	2nd July, 5 P.M.	Junawani Mine, Ramtek P. O., Central Provinces.	Bansilal Abirchand Mining Syndicate.	Guni Dukhia, (*f.*), 18, *Coolie.*	Manganese	A fall occurred from the side, from an area of about $6' \times 6'$ and buried deceased. She probably died from suffocation. The ground is said to have been loosened by heavy rain.

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*b*) Falls of sides—*concld.*			
56	4th July, 10 A.M.	Wazunchaung Mine, Tavoy P. O., Burma.	Quah Cheng Guan . .	Maung Pyu, (*m.*), 30, *Labourer.*	Wolfram .	Deceased and another man were working in an "open cut" when about half a ton of earth fell from the side and buried deceased. Death was instantaneous. There had been very heavy rain on the morning of the accident.
57	12th July, 8 P.M.	Rubber Mile Mine, Tavoy P. O., Burma.	Finlay, Fleming & Co. . .	Ah Loy, (*m.*), 40, *Tributing coolie.*	Wolfram .	Deceased was undercutting the hanging wall in an adit when about half a ton of stone fell upon him from a height of about 5 feet and killed him. Inspection and inquiry made. *See Report, page 9.*
58	15th July, 1 A.M.	Chanch Mine, Barakar P. O., Bihar and Orissa.	Bengal Coal Co., Ld. .	Fucha Manjhi, (*m.*), 28, *Coal-cutter.*	Coal .	Whilst deceased was cutting side coal, a piece of overhanging side coal, measuring 6'-6" long × 7' broad × 1'-9" to 0'-6" thick, fell from a "slip." He sustained a compound fracture of his right leg and severe lacerations and succumbed to his injuries eleven days later. Inspection and inquiry made.
59	1st August, 11 A.M.	Kutchi Dhana Mine Ramkona P. O., Central Provinces.	Indian Manganese Co., Ld.	Bandhari Teli, (*m.*), 35, *Miner.*	Manganese .	Deceased was working at the base of a vertical face of ore, 9 feet in height, when a mass of ore, weighing about two tons, fell upon him. He was killed instantly. Inspection and inquiry made.
60	29th August, 3-30 P.M.	South Jibutil Mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Coopan, (*m.*), 26, *Hand-driller.*	Gold .	A stone, estimated to measure 18" × 9" × 4", fell from the hanging wall, through a distance of 15 feet, upon the right leg of the deceased who was working at the bottom of the stope. He died in hospital on 11th December. Inspection and inquiry made.
61	17th September, 9-30 P.M.	Alkusa and Kiska Mines, Kusunda P. O., Bihar and Orissa.	Kanga & Co. . .	Gurdayal Dosadh, (*m.*), 25, *Coal-cutter.*	Coal .	Deceased was robbing the corner of a pillar on the side of a haulage road. A "slip" of side coal, 14' × 1' × 2', fell over. A part of it, measuring 5' × 2' × 2', fell upon him and pinned him down. He expired before he could be extricated. Inspection and inquiry made.
62	10th October, 5-30 A.M.	Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Sudamdih Coal Co., Ld. .	Mona Teli, (*m.*), 30, *Coal-cutter.*	Coal .	Deceased, contrary to orders, was cutting coal from the base of a pillar. A piece of coal, measuring 4' × 3' × 2', fell from a "slip" from a height of 5' feet striking deceased and killing him instantly. Inspection and inquiry made.
63	18th October, 5 P.M.	Lachmoniah Mine, Domchanch P. O., Bengal.	Jhari Singh . . .	Budhan Gope, (*m.*), 30, *Miner.*	Mica .	Whilst some forty persons were at work in a quarry, 22 feet deep, about 2 tons of soft schist fell from the side, from a height of 7 feet. Deceased was killed on the spot and another miner was injured but not severely. Inspection and inquiry made.

64	26th October, 7 A.M.	Douia Mine, Manharpur P. O., Bihar and Orissa.	Bengal Iron and Steel Co., Ld.	Phutka, (*m.*), 10, *Coolie.*	Iron ore	Deceased was struck on the back of the head by a piece of ore which fell down a slope from a higher level. He died a week later.
65	6th November, 2-15 P.M.	Bansdeopur Mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ld.	Dhan Bhuia, (*m.*), 38, *Coal-cutter.*	Coal	Deceased, during the temporary absence of the sirdar, left his working place and went beyond a fence, where he began to cut coal from the corner of a pillar. A mass of coal, 20 feet high by 6 feet wide and 3 feet 6 inches thick, weighing about 16 tons, fell from a smooth "joint." He was killed on the spot. Inspection and inquiry made.
66	14th November, 4 P.M.	Chowrasi Mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Pailu, (*f.*), 25, *Dust-carrier.*	Coal	Deceased was walking along a level when a piece of coal, 2'×2'×1', fell upon her from the side of a pillar from a height of 10 feet. She sustained a simple fracture of a thigh and died from tetanus fifteen days later. Inspection and inquiry made.
67	22nd November, 11-30 A.M.	New Khas Jharia Mine, Jharia P. O., Bihar and Orissa.	Ramjus Agarwala	Lilla Bauri, (*m.*), 32, *Coal-cutter.*	Coal	During the temporary absence of the overman and sirdar the deceased left his working place, passed through a fence and began to cut coal from the corner of a pillar, 40 feet in height. Some 8 tons of coal fell from a "slip" killing him on the spot. The assistant manager, the overman and a sirdar were dismissed at the request of the Inspector of Mines. Inspection and inquiry made.
68	26th November, 6 A.M.	Diarwa Mine, Kodarma P. O., Bihar and Orissa.	Monoranjan Guha	Dewa Teli, (*m.*), 24, *Earth-cutting coolie.*	Mica	Deceased went into the mouth of a gallery full of water, at the bottom of a quarry, 20 feet deep, to wash his hands, in spite of warnings to the contrary. The ground above was being sloped back at the time. A mass of strata, weighing some 4 to 5 cwts. fell without any warning and buried him. He sustained serious injuries to his head and shoulder and died on the way to hospital. Inspection and inquiry made.
69	9th December, 2-30 P.M.	Widnes Mine, Tavoy P. O., Burma.	High Speed Steel Alloy Co., Ld.	Low Kid, (*m.*), 27, *Tributor.*	Wolfram	Deceased was killed by a fall of overburden, which he was undermining, in an open cast working. Three other men were injured.
70	13th December, 9-30 A.M.	Thandaung Mine, Tavoy P. O., Burma.	Steel Bros. & Co., Ld.	Pahalwan, (*m.*), 25, *Coolie.*	Wolfram	Deceased, against orders, was undermining the side of an open cast working when about half a ton of earth fell on him from a height of 10 feet, and killed him instantly.
71	27th December, 12-15 P.M.	Bhowra Mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Thethor Bhuia, (*m.*), 28, *Coal-cutter.*	Coal	Whilst deceased, under the direct supervision of a sirdar, was taking down overhanging coal from a pillar, 18 feet high, in a pillar-cutting district, he was struck down by a mass of coal, weighing about a ton, which fell upon him from a height of 7 feet. He was killed on the spot. Inspection and inquiry made.

IN SHAFTS.

Overwinding—(*4 deaths*).

72	10th August, Midnight.	Sanctoria Mine, Dishergarh P. O., Bengal.	Bengal Coal Co., Ld.	Akhal Singh, (*m.*), 32, Sukhar Singh, (*m.*), 30, *Timbermen,* Fagu Napit, (*m.*), 35, *Stone-cutter.*	Coal	Whilst four men were being lowered in a shaft, 238 feet deep, the engineman lost control of the winding engine, and the cage struck the landing platform at the bottom with violence. Akhal Singh was killed outright, Sukhar Singh died three days later and Fagu Napit eleven days later. The fourth man was slightly injured. Inspection and inquiry made. *See Report, page 9.*

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
		IN SHAFTS—*contd.*				
		Overwinding—*concld.*				
73	25th September, 10·40 A.M.	Parbelia Mine, Dishergarh P. O., Bengal.	Bengal Coal Co., Ld.	Gouri Singh, (*m.*), 24, *Stone-cutter.*	Coal	Deceased was a sinker, working at the bottom of a shaft, 280 feet in depth. An overwind occurred. The bell box of the safety detaching hook was smashed and a piece of the falling metal, 2¼ lbs. in weight, struck deceased on his head. He died two days later. Inspection and inquiry made.
		Ropes and chains breaking—(*1 death*).				
74	27th May, 5·45 P.M.	North Anantapur Mine, Morriston P. O., Madras.	North Anantapur Gold Mines, Limited.	Erode Rahman, (*m.*), 27, *Blaster.*	Gold	Deceased was riding in a loaded skip in a winze and had reached within 10 feet of the top, when the winding rope broke. He fell through a distance of 200 feet and was killed outright. Inspection and inquiry made.
		Whilst ascending or descending by machinery—(*11 deaths*).				
75	4th January, 2 P.M.	Srikristopur Mine, Kalipahari P. O., Bengal.	Baliram and Co.	Dharu Manjhi, (*m.*), 45, *Miner.*	Coal	Deceased was descending a shaft, 173 feet deep, in a cage. He fell out of the cage to the bottom of the shaft and was killed instantly. The cage was not fitted with gates. Inspection and inquiry made. *See Report, page 10.*
76	17th February, 3·30 P.M.	Jibutil Mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Malappati, (*m.*), 28, *Stuff coolie.*	Gold	Deceased and a fellow workman were, against standing orders, riding on a loaded bucket in a shaft, 350 feet in depth. When nearing the surface deceased released his hold and fell to the bottom of the shaft. He was killed outright. Inspection and inquiry made.
77	20th February, 7 A.M.	Sitalpur Mine, Dishergarh P. O., Bengal.	Bengal Coal Co., Ld.	Dilu Mahato, (*m.*), 36, *Friction roller coolie.* Chutu Barrih, (*m.*), 24, Nandu Barrih, (*m.*), 20, Keshub Barrih, (*m.*), 26, Tulsi Barrih, (*m.*), 18, *Stone cutters.* Lalchand Barrih, (*m.*), 30, *Rail mistri.*	Coal	The six deceased had entered the cage in order to be lowered to the bottom of a shaft, 375 feet deep. Just as the descent commenced, the capping of the winding rope parted from the rope and the cage, with the six men, fell to the bottom. All were killed instantly. Inspection and inquiry made. *See Report, page 10.*

78	7th August, 11 A.M.	Barmondia Mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Sura Bauri, (*m.*), 25, *Hookman.*	Coal	Deceased with three other men was being raised up a shaft, 670 feet deep. When the cage reached a point some 200 feet from the bottom of the shaft deceased fell out of the cage. He was killed instantly. Inspection and inquiry made.
79	6th September, 3 P.M.	Central Dhurmaband Mine, Katrasgarh P. O., Bihar and Orissa.	Central Dhurmaband Coal Co., Ld.	Puran Kumhar, (*m.*), 30, *Head fitter.*	Coal	Whilst deceased and another man were being raised on a scaffold, which was actuated by a hand winch, from the bottom of a shaft, 271 feet in depth, deceased fell off into water below and was drowned. Inspection and inquiry made.
80	16th November, 2 P.M.	South Bulliari Mine, Kustore P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Gutwa Dhobi, (*m.*), 22, *Onsetter.*	Coal	Deceased was the onsetter in charge at the bottom of a shaft, 275 feet deep. The usual signal for men to ride was received at the surface, and the cage was raised in the usual manner. When it arrived at the surface, he was seen to be lying half in and half out of the cage, clasping its end. The winding engine was stopped before the cage reached the banking level, but, before assistance could be given, the deceased relaxed his hold and fell to the bottom of the shaft. His dead body was recovered shortly after. Inspection and inquiry made.
			Falling into the shafts from the surface—(*5 deaths*).			
81	29th February, 9 A.M.	Kurkend Mine, Kurkend P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Manga Koiri, (*m.*), 28, *Banksman.*	Coal	Whilst assisting the European assistant manager to mark off the positions of the guide ropes for automatic fence gates, deceased overbalanced and fell to the bottom of a shaft, 259 feet deep. He was killed on the spot. Inspection and inquiry made.
82	11th May, 2 P.M.	Kujama Mine, Jharia P. O., Bihar and Orissa.	Kanji and Shamji Nanji.	Daya Walji Chohan, (*m.*), 50, *Coal-carrier.*	Coal	Deceased was employed in carrying coal through a gallery in an upper working in a seam of coal, 40 feet thick. In the floor of this gallery a shaft, 5 feet in diameter and 26 feet deep, makes a connection with a gallery in the lower working of the same seam. His lamp was accidentally extinguished and he blundered into the wire, which was fencing the shaft. One of the posts of the fencing gave way and he fell to the bottom of the shaft. He sustained severe injuries to his head and died a week later. Inspection and inquiry made.
83	17th May, 11-45 A.M.	Lutchipur Mine, Sitarampur P. O., Bengal.	Lutchipur Coal Co., Ld.	Nokul Bauri, (*m.*), 20, *Hookman.*	Coal	A fitter engaged in repairing the guide of an automatic gate, fencing a cage pit, had opened the gate for his convenience in working. Deceased, whilst placing a tub in position in front of the opening, ready for the resumption of winding, pushed the tub too far and fell with it to the bottom of the shaft, 356 feet below. He was killed on the spot. Inspection and inquiry made.
84	22nd July, 9 A.M.	Chinitaung Mine, Monywa P. O., Burma.	A. K. A. S. Jamal . .	Thapa Damu, (*m.*), 32, *Miner.*	Copper	Deceased was winding a bucket, by means of a hand winch, up a shaft 99 feet deep. He slipped and fell to the bottom being killed instantly.
85	27th August, 10 P.M.	Bansdeopur Mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co. .	Sukar Dosadh, (*m.*), 25, *Boiler fireman.*	Coal	Deceased, whilst sitting on top of the fencing around a shaft, overbalanced and fell to the bottom, a distance of 224 feet. He was killed instantly. Inspection and inquiry made.

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			IN SHAFTS—*contd.*			
			Falling from part of the way down—(*2 deaths*).			
86	16th June, 1 A.M.	Katras Mine, Katrasgarh P. O., Bihar and Orissa.	Nowagarh Coal Co., Ld.	Pal Singh, (*m.*), 25, *Labourer.*	Coal	Deceased and two other men were suspended in a bucket at a depth of 50 feet in a sinking shaft, 280 feet deep. They were engaged in re-adjusting one of the clamps, which secured three ranges of pipes to two wire ropes suspended from the surface. Whilst deceased was tightening a nut on the clamp, he overbalanced and fell into water at the bottom of the shaft. His body was found ten hours later. Death was considered to have been caused by drowning. Inspection and inquiry made.
87	20th December, 8 P.M.	Ramagiri Mine, Morriston P. O., Madras.	Anantapur Gold Fields, Ld.	Pyaneendy, (*m.*), 38, *Blaster.*	Gold	As deceased was climbing down a winze, 200 feet deep, he slipped and fell to the bottom. He was probably overcome by fumes caused by blasting. He was killed instantly.
			Things falling from the surface—(*2 deaths*).			
88	22nd January, 4-20 P.M.	Sodepur Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Ghoru Bauri, (*m.*), 19, *Onsetter.*	Coal	A piece of coal, measuring about 3″×2″×1½″, fell from the surface, through the clearance between the protection boards and the cage, down a shaft, 417 feet deep, and struck deceased on the head, fracturing his skull. He died two days later. Inspection and inquiry made. *See Report, page 13.*
89	6th February, 1 A.M.	Bhalgora Mine, Jharia P. O., Bihar and Orissa.	Bhalgora Coal Co., Ld.	Majhlu Manjhi, (*m.*), 20, *Pit sinker.*	Coal	Whilst a gang of men were at work at the bottom of a sinking shaft, 245 feet deep, a piece of planking, 24″×9″×1½″, fell from the surface. Deceased was struck on his head and killed on the spot. There was no evidence to show how the planking came to fall into the shaft, but it appears to have been used as a manhole covering for an opening in a platform giving access to a range of pipes. Inspection and inquiry made.

			Things falling from part of the way down—(*2 deaths*).			
90	19th May, 7 A.M.	Kurhurbari Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Budhu Meah, (*m.*), 48, *Syce.*	Coal	Deceased was standing inside a cage at the bottom of a shaft, 450 feet deep, when a piece of stone, measuring 2'-6" × 1'-7" × 9", fell from the side of the shaft, through a distance of 98 feet, upon the bonnet of the cage. His neck was broken and he died instantly. Inspection and inquiry made.
91	18th November, 1 P.M.	North Kustore Mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Lalu Panjabi, (*m.*), 35, *Foreman labourer.*	Coal	Guide ropes were being fitted in a new shaft, 342 feet deep. In the process of tightening one of the ropes it fouled a pipe, 2" in diameter and 75 feet in length, supported in the shaft, near the surface, by four clamp bolts cemented in holes in the side of the shaft. The lowest of the clamp bolts drew out of its hole and fell to the bottom of the shaft, where deceased and two other men were engaged in fixing the guide ropes. Deceased was struck on his head and died two days later. Inspection and inquiry made.
			Miscellaneous—(*2 deaths*).			
92	3rd February, 11 A.M.	Loyabad Mine, Bansjora P. O., Bihar and Orissa.	Barakar Coal Co., Ld.	Maula Meah, (*m.*), 27, *Foreman labourer.*	Coal	In a shaft, 231 feet deep, the four guide ropes are kept taut by suspending a square wooden box filled with stones from their lower ends. During the operation of erecting a new head gear the box and guide ropes were lowered to the bottom of the shaft. When the erection was complete, the guide ropes were raised, by means of the winding engine rope and adjusted to the proper length. A gang of eight coolies was then employed in replacing the box. Whilst they were so engaged one of the guide ropes was raised a distance of 18 inches, causing the box to cant upwards at one corner. Deceased, who was sitting on the box at the time, was crushed between the box and one of the beams carrying the cage platform. He was killed on the spot. Inspection and inquiry made.
93	20th March, 10 A.M.	Sodepur Mine, Nos. 9 and 10 pits, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Mongal Bauri, (*m.*), 30, *Trolleyman.*	Coal	Deceased was found beneath a cage which had just reached the shaft bottom. It was his duty to unhook the fence chain on the cage and it is surmised that he slipped and fell on the sumpboards as he was approaching the shaft. He died a few moments after being released. Inspection and inquiry made.
			BY EXPLOSIVES—(*1 death*).			
94	29th May, 11 A.M.	Meke Myabya Mine, voy P. O., Burma.	Lim Kyi Yan	Ah Foon, (*m.*), 24, *Coolie.*	Wolfram	As deceased was pressing a detonator into a dynamite cartridge, it exploded in his hand. He received injuries from which he died nine hours later.

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			BY EXPLOSIVES—*concld.*			
95	18th July, 6-30 P.M.	Kutchi Dhana Mine, Ramkona P. O., Central Provinces.	Indian Manganese Co., Ld.	Gouri Shanker Kole, (*m.*), 35, *Miner.*	Manganese.	Deceased and another coolie, who was injured, attempted to tamper with a shot hole that had missfired on the previous evening. While doing so, the shot went off and deceased died from shock and other complications sixteen days later. A mines foreman who should have superintended the work was dismissed. Inquiry held.
96	28th July, 4-30 P.M.	Tagu Mine, Mergui P. O., Burma.	E. Ahmed . . .	Sein Pe, (*m.*), 20, *Coolie.*	Wolfram .	Deceased returned too soon to the place where a shot had hung fire. It went off and killed him instantly.
97	14th September, 12 Noon.	Aldih Mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld. .	Jhaman Nunia, (*m.*), 20, *Gunpowder maker.*	Coal .	A person carelessly threw a lighted cigarette amongst some country gunpowder spread out in the open to dry. The powder caught fire and burnt deceased who was close by. He died twenty hours later. Inspection and inquiry made.
			IRRUPTIONS OF WATER OR FALLING INTO WATER—(*3 deaths*).			
98	25th May, 11-30 A.M.	Bulliari Mine, Kurkend P. O., Bihar and Orissa.	Bulliari Coal Co. . .	Tejua Kandua, (*m.*), 30, *Coal-cutter.*	Coal .	A main gallery holed through, unexpectedly, into some old workings containing a large quantity of water. Deceased and nine other men were underground at the time. The nine men were able to escape up the shaft but deceased was overwhelmed by the flood and drowned before he could follow. Inspection and inquiry made.
99	22nd September, 6-30 P.M.	Damaghurria Mine, Kulti P. O., Bengal.	Damaghurria Coal Co., Ld.	Akkur Bauri, (*m.*), 35, Manu, (*m.*), 45, *Main gallery drivers.*	Coal .	During a heavy storm of rain a protective embankment was breached, and an incline was inundated. The two deceased, who were in the incline, were drowned in the flood. Inspection and inquiry made.

HAULAGE—(*12 deaths*).

100	3rd January, 7-30 A.M.	Narsamuda Mine, Sitarampur P. O., Bengal.	Sitarampur Coal Co., Ld.	Bhim Bauri, (*m.*), 37, *Signalman.*	Coal	As a set of twenty-one empty tubs was being lowered down a main dip haulage, the leading seven tubs ran wild owing to a drawbar breaking. Deceased was crushed between the side of a pillar and the runaway tubs. He was killed instantly. Inspection and inquiry made.
101	7th January, 5-30 P.M.	Aldih Mine, Sitarampur P. O., Bengal.	Aldih Coal Co., Ld.	Nidhu Baurin, (*f.*), 35, *Bailing kamin.*	Coal	As deceased with some companions was ascending a main haulage road she was knocked down and run over by a set of empty tubs. She received injuries from which she died twenty-two hours later. Inspection and inquiry made.
102	2nd February, 5-30 A.M.	Tikak Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Durga Singh Thapa, (*m.*), 32, *Trammer.*	Coal	Deceased was travelling out of the mine along the haulage road. He was struck by the outgoing set of tubs and killed instantly. Inspection and inquiry made.
103	6th April, 2 A.M.	Dishergarh Mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Muchiram Manjhi, (*m.*), 30, *Coal-cutter.*	Coal	Deceased with companions was sleeping on the side of a tram line. A tub of coal, which was being pushed from inbye, ran wild, and became derailed close to deceased, and either ran over or struck his left leg, causing a compound fracture. He died fifteen days later. Inspection and inquiry made.
104	19th April, 9-30 A.M.	Bon Jumerri Mine, Salanpur P. O., Bengal.	Bon Jumerri Anthracite Colliery, Ld.	Kunjo Lohar, (*m.*), 44, *Coal-cutter.*	Coal	An empty tub was being lowered down a haulage road when it collided with a full tub standing at the end of a plane. Deceased was crushed between the two tubs whilst in the act of picking up fallen coal. His left hip joint was dislocated. This injury and the shock accelerated an attack of strangulated hernia and he succumbed three hours later. He had suffered from hernia prior to the accident. Inspection and inquiry made.
105	29th April, 7 A.M.	Namdang Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Punty, (*f.*), 24, *Brakeswoman.*	Coal	As deceased was walking into the mine along the haulage road, she was run down by a train of tubs and dragged a distance of about 50 yards. When found she was quite dead. Inspection and inquiry made.
106	29th April, 1-30 P.M.	Ekra Khas Mine, Bansjora P. O., Bihar and Orissa.	The Hon'ble Maharaja Sir M. C. Nandi, K.C.I.E.	Chamarin Bilaspurin, (*f.*), 28, *Coal-carrier.*	Coal	Whilst a train of eight empty tubs was being lowered down a haulage slope a coupling chain fell off and seven tubs ran wild. Deceased, who was walking out of the mine at the time, was knocked down and killed on the spot. Inspection and inquiry made.
107	13th May, 11 A.M.	Sodepur Mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Latu Bauri, (*m.*), 50, *Coal-cutter.*	Coal	Deceased, whilst walking towards the shaft bottom, was pinned between a stationary tub of coal and another tub which was being shunted. He sustained internal injuries from which he died six hours later. Inspection and inquiry made.
108	8th July 3 A.M.	Sitalpur Mine, Dishergarh P. O., Bengal.	Bengal Coal Co., Ld.	Sahadeo Ram, (*m.*), 26, *Underground tub checker.*	Coal	As a train of eight empty tubs was being lowered down an engine plane, the front tub broke away and struck deceased, who was walking down the road, 400 feet below, and killed him instantly. Inspection and inquiry made.

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			HAULAGE—*concld.*			
109	21st July, 2 A.M.	Alkusa Mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Punit Dosadh, (*m.*), 27, *Hookman.*	Coal	Whilst a train of twelve empty tubs was being lowered down a haulage slope, 2,000 feet in length, a coupling chain fell off, and nine tubs ran wild into the landing station below. Their impact broke the buffer stop, and five loaded tubs ran over the ends of the rails and were piled up in a heap a short distance below. The haulage attendant attached the rope to these tubs and gave the signal to raise. After about three feet of rope had been hauled up the axle of one of the tubs caught under the end of the rails. The excessive strain set up caused the rope to break at a point about 250 feet from the hauling engine. Deceased had been stationed at a curve about 600 feet above the landing station, where it was his duty to transmit signals. He failed to stand clear and was struck by the released rope after its fracture. He sustained injuries to which he succumbed the same day. Inspection and inquiry made.
110	3rd August, 7 P.M.	Karmatand Mine, Nowagarh P. O., Bihar and Orissa.	D. H. Agarwala .	Rang Lal Napit, (*m.*), 24, *Water bailer.*	Coal	Three empty tubs ran wild from the top of a haulage slope, dipping at an angle of 1 in 3. Deceased was knocked down and sustained injuries to which he succumbed the next day. Inspection and inquiry made.
111	31st December, 10-15 P.M.	Jatachappa Mine, Pench P. O., Central Provinces.	Upper Pench Coal Co., Ld.	Ramadin, (*m.*), 26, *Water-coolie.*	Coal	Some full tubs ran wild down a self-acting incline and struck deceased at the bottom of the incline. He sustained injuries, from the effects of which he died twelve days later. Inspection and inquiry made.
			SUNDRIES UNDERGROUND—(*7 deaths*).			
112	5th March, 11-30 A.M.	Khost Mine, Khost P. O., Baluchistan.	North-Western Railway .	Dittu, (*m.*), 35, *Plate laying coolie.*	Coal	Deceased was descending a haulage road, dipping at 51 degrees, to examine the track. He slipped and fell 900 feet to the bottom being killed instantly. Inspection and inquiry made.
113	13th July, 1 P.M.	Mayo Mine, Khewra P. O., Panjab.	Government of India .	Buksh, (*m.*), 50, *Miner.*	Salt	Deceased was employed in carrying salt from a working face for a distance of about 150 feet to a tram road. He carried out a load, and before depositing it, was seized with giddiness and fell between the edge of the loading wharf and a tram standing on the line. He sustained a concussion of the spine and died twelve days later of acute cerebro-spinal meningitis. Deceased was an old man and was weak through observance of the Ramzan fast. Inspection and inquiry made.

114	15th July, 3-30 P.M.	Chanch Mine, Barakar P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Budhni Mejhian, (*f.*), 62, *Dust Kamin.*	Coal	Deceased was filling dust, close to where some miners were extracting a pillar. A large piece of coal fell from the pillar and deceased in attempting to run back out of danger, fell over. She succumbed to hœmorrhage of the brain three hours later. Inspection and inquiry made.
115	2nd October, 11 P.M.	Golukih Mine, Jharia P. O., Bihar and Orissa.	N. M. Chowdhury & Co.	Dugi Mejhian, (*f.*), 20, *Coal-carrier.*	Coal	Deceased was pushing an empty tub along a tram line level. In an attempt to keep clear of two tubs that were being brought along behind her, she stepped to one side, and fell down into a dip gallery in which some 8 feet to 10 feet of floor had been extracted. While in the act of falling she caught hold of the side of the tub, overbalanced it and dragged it over with her. She sustained a broken neck. Death was instantaneous. Inspection and inquiry made.
116	7th October, 10-45 A.M.	Dishergarh Mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Raghunath Dubey, (*m.*), 40, *Electrical fitter.*	Coal	Deceased, whilst cutting an electrical lighting cable, charged with alternating current at 110 volts., received a shock and fell down. He had, before commencing work, cut out the switch, but an unauthorized person replaced it. In falling he struck the back of his head against a pipe lying on the ground. According to medical evidence his death was due to an electric shock. Inspection and inquiry made.
117	23rd October, 3-15 P.M.	New-West Ledo Valley Mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Billar, (*m.*), 22, *Horse driver.*	Coal	Deceased, who was driving a restive horse, dropped his lamp, and whilst endeavouring to pick it up, let go the bridle. The horse moved forward and crushed him between the side and tub. He died a month later from injuries received. Inspection and inquiry made.
118	16th December, 12-30 P.M.	Noonoodih Mine, Jamadoba P. O., Bihar and Orissa.	Bengal Iron and Steel Co., Ld.	Lakhan Bauri, (*m.*), 30, *Hauling engineman.*	Coal	Whilst deceased was opening a cast iron valve on a range of steam pipes, ¼ inch in diameter, the valve burst and he was scalded so severely that he died eight days later. Inspection and inquiry made.
			SURFACE MACHINERY.—(*3 deaths*).			
119	24th June, 6-30 P.M.	Bhowra Mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Punua Nowa, (*m.*), 22, *Engine minder.*	Coal	Deceased attempted to oil a disintegrating machine whilst it was in motion. He was drawn into the machinery and killed on the spot. Inspection and inquiry made.
120	25th June, 5-30 P.M.	Titulmuri Mine, Sijua P. O., Bihar and Orissa.	Titulmuri Collieries, Ld.	Jiva Rajwar, (*m.*), *13*, *Shale picker.*	Coal	Deceased worked at a mechanical coal screening plant and arrived at his home, about one hundred yards distant. He had been running, but fell down and became unconscious, dying about twenty minutes later. His skull and breast bone were found to be fractured. There were contused wounds on his body and the top of his left thumb was missing. No one saw the accident and there was nothing to show how it occurred. He must however have been crushed somehow in the machinery. The machinery was fenced. Inspection and inquiry made.
121	9th December, 11-45 A.M.	Sazar-In wash mill, Mogok P. O., Burma.	Burma Ruby Mines, Ld.	Maung Pho Nyin, (*m.*), 33, *Clutchman.*	Rubies	Deceased fell and was crushed between the gear wheels of a washing mill and killed instantly.

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			ON SURFACE RAILWAYS AND TRAMWAYS BELONGING TO THE MINE.—(*6 deaths*).			
122	29th April, 1 P.M.	Kurhurbari Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Banu Bhuia, (*m.*), 25, *Loco. Guard.*	Coal . .	Deceased was employed on a colliery surface railway, and was accidentally killed by falling from a locomotive and being run over by a truck. Inspection and inquiry made.
123	1st May, 6-45 P.M.	Charanpur Mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ld. .	Munjari Baurin, (*f.*), 22, *Trammer.*	Coal . .	Deceased, whilst helping to push a loaded tub along a surface tramway, slipped and fell, and was run over by a following tub. She died three hours later. Inspection and inquiry made.
124	19th May, 4 A.M.	Joyrampur Mine, Jharia P. O., Bihar and Orissa.	B. R. and Co. . .	Jiblal Bhuia, (*m.*), 16, *Trammer.*	Coal . .	As deceased was pushing a tub of coal to the loading wharf, another tub of coal behind him ran away and before he could jump clear, his leg was pinned between the two tubs and fractured. He died two days later in hospital, after the limb had been amputated. Inspection and inquiry made.
125	1st August, 10 A.M.	Bokaro-Jharia Mine, Nowagarh P. O., Bihar and Orissa.	Bokaro-Jharia Coalfields, Ld.	Manu Beldar, (*m.*), 70, *Tramming coolie.*	Coal . .	Whilst deceased and two other persons were pushing a loaded tub on a tram line up a grade of 1 in 50, they were overtaken by another tub being pushed by two other persons. His companions stepped to one side and told him to do so also, but he failed to do so and was crushed between the two tubs. He sustained a spinal injury to which he succumbed two days later. Inspection and inquiry made.
126	24th August, 1 A.M.	Douia Mine, Manharpur P. O., Bihar and Orissa.	Bengal Iron and Steel Co., Ld.	Tobo, (*m.*), 16, *Coolie.*	Iron Ore .	While moving a loaded tub, deceased slipped and fell and another tub, which was following closely, ran over his left leg. He died five days later.
127	21st September, 5-45 P.M.	Kutchi Dhana Mine, Ramkona P. O., Central Provinces.	Indian Manganese Co., Ld.	Fagu Kole, (*f.*), 13, *Coolie.*	Manganese .	Deceased was crossing a tram line, while carrying ore. A tub was being pushed by hand and was derailed probably by ore dropped by deceased. She was crushed by the tub and sustained injuries from which she died seven hours later. Inspection and inquiry made.
			MISCELLANEOUS ON SURFACE.—(*47 deaths*).			
128	4th February, Between 2 & 3 A.M.	Bhowra Mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld. .	Pitamber Rajwar, (*m.*), 28, Behari Rajwar, (*m.*), 12, Baikunta Bauri, (*m.*), 28, Sambhu Bauri, (*m.*), 25, Allad Bauri, (*m.*), 19, Putku Bauri, (*m.*), 26, Sajhu Rajwar, (*m.*), 50, *Miners.*	Coal .	The deceased were asleep at night in their huts, which were situated over underground workings. In the middle of the night these workings suddenly collapsed, engulfing the huts. The deceased were buried under the *debris* of the fallen huts and killed. Inspection and inquiry made. *See Report, page 13.*

				Lakhi Rajwarin, (*f.*), 16, Mukti Rajwarin, (*f.*), 16, Dhiri Baurin, (*f.*), 16, Chandi Baurin, (*f.*), 15, Meni Baurin, (*f.*), 32, Thaki Baurin, (*f.*), 16, Jamuna Baurin, (*f.*), 12, Fudni Baurin, (*f.*), 16, Palani Baurin, (*f.*), 18, *Coal-carriers.* Bahadur Rajwar, (*m.*), 6, Bhagi Rajwarin, (*f.*), 8, Rishi Bauri, (*m.*), 9, Sristidhar Bauri, (*m.*), 1, Futi Baurin, (*f.*), 9, Abinash Bauri, (*m.*), 1, Baby Baurin, (*f.*), 6, Mabindi Bauri, (*m.*), 1.		
129	11th February, Between 7 & 8 A.M.	Wazunchaung Mine, Tavoy P. O., Burma.	Quah Cheng Guan . .	Maung Nu, (*m.*), 40, *Labourer.*	Wolfram .	Deceased was struck by a falling tree which was blown down by a gale. He was killed instantly.
130	21st May, 6 A.M.	Sijua Mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ld. . .	Rubin Dosadhin, (*f.*), 45, *Bailer woman.*	Coal .	Deceased's body was found in a tank containing water to a depth of 6 feet. There was no evidence to show how her death was caused. Inspection and inquiry made.
131	21st May, 9 A.M.	East Nudkhurki Mine, Nowagarh P. O., Bihar and Orissa.	Auckland Coal Co., Ld. .	Tuni Bhuiani, (*f.*), 20, Tenti Bhuiani, (*f.*), 40, *Coal-carriers.*	Coal .	The two deceased were bathing in an old quarry. One of them went out of her depth and began to sink. The other went to the rescue and also got into deep water. Both were drowned. The top of the quarry was fenced. Inspection and inquiry made.
132	16th June, 9·30 A.M.	Kambauk Mine, Tavoy P. O., Burma.	Radcliff & Co., Ld. .	Pun Chi, (*m.*), 52, *Coolie.*	Wolfram .	A hydraulic monitor got out of control and threw the jet near deceased and others working near him. Deceased was thrown against the roof of a bank and sustained injuries through which he died an hour later.
133	12th August, 9 A.M.	Wazunchaung Mine, Tavoy P. O., Burma.	Quah Cheng Guan . .	Muk Khin, (*m.*), 27, Phoon Wai, (*m.*), 26, Chang King, (*m.*), 27, Lum Shin Tung, (*m.*), 21, Phun Tung Sang, (*m.*), 24, Owe Ngi, (*m.*), 31, Lai Ngi, (*m.*), 35, Chan Choi Kam, (*m.*), 20, Chong Hok, (*m.*), ? *Labourers.*	Wolfram .	Owing to the bursting of a dam, erected across a river for mining purposes, a flood occurred, and the deceased, who were in their coolie lines, over a mile away, at the time, were swept away and drowned. Inspection and inquiry made. *See Report, page 15.*
134	10th September, 11 P.M.	Nodiha Mine, Dishergarh P. O., Bengal.	Nodiha Coal Co., Ld. .	Jhari Bauri, (*m.*), 22, *Pump khalasi.*	Coal .	Deceased, whilst working on an electrical transmission pole, received a shock, by reason of the switch in the power house being inadvertently put in. He fell to the ground through a distance of 18 feet, and sustained injuries which resulted in death three days later. Another man working with him was slightly burnt. Inspection and inquiry made.

APPENDIX II—*contd.*

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			MISCELLANEOUS ON SURFACE—*concld.*			
135	22nd September, 4-30 P.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co. .	Kesia Chamin, (*f.*), 14, *Coal-carrier.* Chamni Chamin, (*f.*), 4,	Coal .	The two deceased were walking in a field during a severe cyclone and were struck by a broken low tension electric wire connected with the colliery. Both received a shock and fell into some water and were drowned. Inspection and inquiry made.
136	14th October, 10-30 A.M.	Kantapahari Mine, Panuria P. O., Bengal.	Barakar Coal Co., Ld. .	Lab Singh, (*m.*), 20, *Coolie.*	Coal .	Deceased was crushed against a boiler by a large steel girder. He sustained internal injuries from which he died the following day. Inspection and inquiry made.
137	4th November, 3 P.M.	Kambauk Mine, Tavoy P. O., Burma.	Radcliff & Co., Ld. .	Pu Tit, (*m.*), 30. *Coolie.*	Wolfram .	Deceased was working on the roof of a wolfram godown. He sustained a shock from an electric wire, fell to the ground and was killed.
138	4th November, 8-45 P.M.	Bagdiggi Mine, Jharia P. O., Bihar and Orissa.	C. J. Smith . . .	Etwari Mahato, (*m.*), 35, *Trammer.*	Coal .	As deceased and another trolleyman were pushing an empty tub along a gantry, it derailed and fell from off the gantry. Both men jumped to the ground some 10 feet below. Deceased fell heavily and sustained internal injury, to which he succumbed about two hours later. Inspection and inquiry made.
139	20th December, 3 .M.	Kendwadih Mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Lildhari Dosadh, (*m.*), 20, *Onsetter.*	Coal .	Deceased was employed as an onsetter at the top of a winding shaft. Being a cold night, he lay down and slept near a coal fire which he had lighted. His clothes caught fire, and he sustained burns to the effects of which he succumbed sixteen days later. Inspection and inquiry made.
140	27th December, 5 P.M.	Jogta Mine, Sijua P. O., Bihar and Orissa.	Agabeg Brothers . .	Tetra Bhuia, (*m.*), 10, Panwa Bhuiani, (*f.*), 11, *Screeners.*	Coal .	Whilst a number of children were loading small coal at the foot of a heap of coal, 22 feet in height, three of them were buried by small coal rolling down from the heap. When extracted the two deceased were dead. The other child revived after artificial respiration had been applied. Inspection and inquiry made.

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
			DEATHS NOT INCLUDED IN THE STATISTICS.—(*37 deaths*).				
1	1st January, 11-30 A.M.	Ghusik Mine, Kalipahari P. O., Bengal.	Baliram & Co.	Rama Turi, (*m.*), 5.	Coal	Not employed	Deceased fell into a boiler feed water tank, which contained water 3'-11" deep, and was drowned. The tank was fenced. Inspection and inquiry made.
2	18th January, 1 P.M.	Chowka Mine, (abandoned).	Equitable Coal Co., Ld.	Unknown, (*f.*), 6.	Coal	Not employed	Deceased was found drowned in an old shaft. Inspection and inquiry made.
3	1st February,	Sowardih Mine, Bhujudih P. O., Bihar and Orissa.	Sowardih Coal Co.	Unknown, (*f.*), 28.	Coal	Not employed	Deceased's body was found at the bottom of a quarry 67 feet in depth. The fencing on the edge of the quarry was intact. Inspection and inquiry made.
4	4th February, 10-30 P.M.	Bejdih Mine, Sitarampur P. O., Bengal.	Equitable Coal Co., Ld.	Kusumer Bagti, (*f.*), 6, Chunda Bagti, (*f.*), 30, *Brick-carrier.*	Coal	Not a mining accident.	While four members of a family were sleeping in brickmaker's hut, the straw thatch caught fire and the hut was burnt to the ground. The father dragged out his wife and one child, both seriously burned; but, before he could return for the other, the roof collapsed and she was burnt to death. The wife died eight days later. An open fire was burning only 3 feet away at the time and it is thought that a spark was blown on to the thatch. Inspection and inquiry made.
5	23rd February, 5 P.M.	Shampur Mine, Nirshachati P. O., Bihar and Orissa.	Shampur Coal Co., Ld.	Fugri Manjhi, (*m.*), 50, *Miner.*	Coal	Not a mining accident.	Deceased, while in a fit, set fire to his clothes with an open lamp. He sustained severe burns to the lower portion of his body, from the effects of which he died twenty-four hours later. Inspection and inquiry made.
6	27th March,	Kandri Mine, Ramtek P. O., Central Provinces.	Central Provinces Prospecting Syndicate, Ld.	Bihari Kachi, (*m.*), 36, *Coolie.*	Manganese	Not a mining accident.	Deceased fell down a well during the early hours of the morning. He was removed at 6-30 A.M. in an exhausted condition and died at 10 A.M. There was a wall, 4 feet high, round the well.
7	28th March, 11 A.M.	An abandoned quarry	—— Roy	Borhana Meah, (*m.*), 14.	Coal	Not employed	Deceased and another child were scraping some fire clay from the back of an old quarry, when the ground above them gave way and some large lumps of earth, measuring up to 3'×2'×2', fell upon them. Deceased succumbed to his injuries the same day. Inspection and inquiry made.
8	1st April, 9-30 A.M.	Bamankua Mine, Shivrajpur P. O., Bombay.	Bamankua Manganese Co., Ld.	Dhapi, (*f.*), 2.	Manganese	Not employed	Deceased who had been left by her mother, crawled under a wagon and dislodged a brake stick placed in position to jam the wheels. The wagon moved a little down the grade crushing her chest and killing her.

Fatal Accidents, 1916—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
		DEATHS NOT INCLUDED IN THE STATISTICS—*contd.*					
9	5th April, 8-30 A.M.	South Kustore Mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Nazir Meah, (*m.*), 12, *Shale picker.*	Coal	Not a mining accident.	Whilst attempting to cross a railway siding during hand shunting operations, deceased was crushed between the buffers of two wagons and killed on the spot. Inspection and inquiry made.
10	7th April, 7 A.M.	Dishergarh Mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Rajhu Passi, (*m.*), 30, *Coal cutter.*	Coal	Not a mining accident.	Deceased and another man were cooking their food inside a hut. A kerosine lamp was hanging on the wall near some clothing. The lamp set fire to the clothing and ignited the thatched roof. Whilst endeavouring to save the clothes within the hut deceased's own clothes caught fire. He was badly burned and died from the effects eleven days later. Inspection and inquiry made.
11	About 14th April.	Kendwadih Mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Dukhia Telin, (*f.*), 16.	Coal	Not employed	The body of deceased was found at the bottom of an air shaft about 100 feet deep. Inspection and inquiry made.
12	27th April, 10 P.M.	Tajuwala Mine, Rawal Pindi P. O., Panjab.	Northern India Coal Co.	Alam Khan, (*m.*), 22.	Coal	Not employed	Deceased and three other persons were riding on a water tank, which was being hauled up a steep slope by a locomotive. Owing to a jerk, the coupling pin came out and the tank ran backwards down the slope. The other men jumped off, but deceased failed to do so and was crushed between the tank and another tank, standing on the line, 1,000 feet down the slope. He sustained injuries to which he succumbed two days later. Inspection and inquiry made.
13	21st May, 12 Noon.	Hariladih Mine, Jharia P. O., Bihar and Orissa.	Equitable Coal Co., Ld.	Unknown, (*f.*), 20.	Coal	Not employed	The body of deceased was found floating in water at the bottom of a disused shaft, 38 feet deep. Inspection and inquiry made.
14	25th May, 8 A.M.	Sibpur Mine, Charanpur P. O., Bengal.	Katras Jharia Coal Co.	Ful Basia, (*f.*), 4.	Coal	Not employed	Deceased was playing on a surface tramway, when she was run into by a loaded tub. She received injuries to her head, from which she died a few minutes later. Inspection and inquiry made.
15	30th May, 12-30 P.M.	Knordih Mine, Kalipahari P. O., Bengal.	Knordih Coal Co., Ld.	Rajaram Gope, (*m.*), 8.	Coal	Not employed	Deceased fell into a water-logged subsidence and was drowned before help could be rendered. Inspection and inquiry made.
16	2nd June, 5-15 A.M.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Dulia Jolhin, (*f.*), 70.	Coal	Not employed	Deceased was caught by the footboard of a brake van while attempting to cross the line. She sustained very severe injuries to which she succumbed.

17	3rd June, 12 Noon.	Sibpur Mine, Charanpur P. O., Bengal.	Katras Jharia Coal Co., Ld.	Khudu Turi, (*m.*), 6, Sugi Domin, (*f.*), 30.	Coal	Not employed	The two deceased fell into an old water-logged quarry and were drowned before aid could be rendered. The quarry was securely fenced on all sides. Inspection and inquiry made.
18	3rd July, 1-30 P.M.	Baraboni Mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Chattu Rajwar, (*m.*), 30, *Loading coolie.*	Coal	Not a mining accident.	Deceased was underneath a main line wagon helping to hand shunt it in a colliery siding. He slipped and fell and was run over by one of the rear wheels. He sustained injuries which necessitated the amputation of his left arm. He died five days later. Inspection and inquiry made.
19	13th July, 2-30 P.M.	Charanpur Mine, Charanpur P. O., Bengal.	Apcar & Co.	Dukhi Telin, (*f.*), 5.	Coal	Not employed	Deceased was crushed between two wagons which were standing on a siding owing to another wagon, which was being shunted, colliding with them. She sustained injuries from which she died two days later.
20	8th August, 9 A.M.	Babisole Mine, Raniganj P. O., Bengal.	Bilbera Coal Co., Ld.	Sristy Bauri, (*m.*), 20, *Coolie.*	Coal	Not a mining accident.	Deceased jumped off the loading wharf and was run over by a passing train. He sustained injuries from which he died two days later.
21	18th August, 8 A.M.	Satak Mine, Dumrikhurd P. O., *viâ* Kamptee, Central Provinces.	Byramji Pestonji & Co.	Lahnia, (*m.*), 45, *Barber.*	Manganese	Not employed	Deceased was struck down by a tub on a tram line bridge and was killed instantly.
22	26th August, 4 P.M.	Barari Mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Abdul Meah, (*m.*), 35, *Bricklayer.*	Coal	Not a mining accident.	Whilst dismantling a building scaffold, 10 feet high, deceased overbalanced and fell backwards on to a heap of bricks, sustaining a spinal injury, to which he succumbed some five weeks later. Inspection and inquiry made.
23	1st September, 9 A.M.	Hermyingyi Mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Low Ah Him, (*m.*), 22, *Coolie.*	Wolfram	Not a mining accident.	Deceased was struck by a falling tree, which others were felling at the time. He was crushed and killed.
24	4th September, 4 P.M.	Saltore Mine, Dishergarh P. O., Bengal.	Saltore Coal Co., Ld.	Unknown, (*m.*), 30.	Coal	Not employed	Deceased's body was found in the sump of a shaft, 666 feet deep. His skull was fractured, and both legs and arms were broken in several places. The shaft was adequately fenced.
25	23rd September, 6 P.M.	Rakha Hills Mine, Rakha Mines P. O., Bihar and Orissa.	Cape Copper Co., Ld.	Vankat Ram, (*m.*), 23, *Timber mistri.*	Copper	Not a mining accident.	Whilst another workman was standing on a large stone engaged in erecting an archway under a road the stone became dislodged and crushed deceased killing him instantly.
26	29th September, 7-30 A.M.	Kendwadih Mine, Jamadoba P. O., Bihar and Orissa.	Hariladih Coal Co., Ld.	Jung Bahadur Singh, (*m.*), 34, *Trolley man.*	Coal	Not a mining accident.	Deceased whilst attempting to descend a well on a rope, fell to the bottom and was drowned.
27	8th November, 8-30 A.M.	Ranidih Mine, Mohoda P. O., Bihar and Orissa.	S. N. Mittra	Bhutak Rai, (*m.*), 2.	Coal	Not employed	Deceased, whilst playing near his mother, who was engaged in carrying ashes near a boiler, fell into a boiler feed water tank and was drowned. The tank was unfenced. Inspection and inquiry made.
28	3rd December, 11-30 A.M.	Kambauk Mine, Tavoy P. O., Burma.	Radcliff & Co., Ld.	Chan Kao, (*m.*), 21, *Coolie.*	Wolfram	Not a mining accident.	Deceased was killed by the fall of a large tree, which was blown down by the wind.
29	17th December, 4 P.M.	Tikuri Mine, Katni P. O., Central Provinces.	Katni Cement and Industrial Co., Ld.	Pani, (*f.*), 11, *Coolie.*	Clay	Not employed	Deceased was found drowned in a disused China clay quarry.

Fatal Accidents, 1916—*concld.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
			DEATHS NOT INCLUDED IN THE STATISTICS—*concld.*				
30	19th December, Between 8 and 9 A.M.	Sukli Mine, Tirodi P. O., Central Provinces.	Central India Mining Co., Ld.	Gulbasia, (*f.*), 50, *Coolie.*	Manganese .	Not a mining accident.	Deceased was found drowned in an old excavation. The excavation was fenced.
31	23rd December,	Dishergarh Mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld. .	Unknown, (*m.*), 40,	Coal .	Not employed	Deceased was found dead at the foot of a pole, supporting wires which conveyed electrical current at an E. M. F. of 3,000 volts. Inspection and inquiry made.
32	27th December,	Bhulanbarari Mine, Jamadoba P. O., Bihar and Orissa.	Bhulanbarari Coal Co., Ld.	Kasinath Mukherji, (*m.*), 32, *Overman.* Joydeb Mukherji, (*m.*), 28, *Sirdar.*	Coal .	Not a mining accident.	The deceased passed the night in a room, closing the two windows and the door and keeping a fire inside. The fumes of the fire overcame them and they were found dead in the morning.
33	30th December, 12 Noon.	Serampur Mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co. .	Alibux Meah, (*m.*), 5.	Coal .	Not employed	Deceased fell into an old shaft containing water and was drowned. The shaft was fenced by a wall 3 feet high. Inspection and inquiry made.
34	?	Sunpur Mine, (Abandoned).	Ondal Coal Co., Ld. .	Unknown, (*f.*), ?	Coal .	Not employed	Deceased's body was found in a decomposed state at the bottom of an abandoned shaft. There was no evidence to show how she came to be there. The shaft was fenced.

APPENDIX II—*contd.*

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1916.

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
						A.—COAL.							
Assam	Lakhimpur	2,611	8	8	...	8	75	72	6	78	4·43	...	3·06
	Naga Hills	183	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	2,794	8	8	...	8	75	72	6	78	4·31	...	2·86
Baluchistan	Kalat	96	1	1	...	1	...	...	...	...	18·18	...	10·42
	Loralai, Loralai	20	...	...	...	...	...	...	...	...	...	...	...
	Quetta, Pishin	127	...	...	...	...	...	...	...	...	...	...	...
	Sibi, Khost, etc.	868	2	2	...	2	4	4	...	4	3·70	...	2·30
	TOTAL	1,111	3	3	...	3	4	4	...	4	4·32	...	2·70
Bengal	Bankura, Raniganj	104	1	1	...	1	...	...	...	...	15·87	...	9·62
	Birbhum „	29	...	...	...	...	...	...	...	...	...	...	...
	Burdwan „	42,907	32	57	2	59	48	38	12	50	2·05	·13	1·38
	TOTAL	43,040	33	58	2	60	48	38	12	50	2·08	·13	1·39
Bihar and Orissa	Hazaribagh: Bokaro-Ramgarh	2,058	1	...	1	1	7	1	6	7	...	2·09	·49
	Hazaribagh: Giridih	2,976	8	7	3	10	21	15	6	21	·100	1·01	1·00
	Hazaribagh: Jharia	397	1	1	...	1	1	1	...	1	4·18	...	2·52
	Manbhum, Jharia	71,575	50	45	34	79	56	45	15	60	1·00	1·27	1·10
	„ Raniganj	5,689	6	5	1	6	2	1	1	2	1·46	·44	1·05
	Palamau, Daltonganj	812	...	...	...	...	2	1	1	2	...	...	...
	Sambalpur, Hingir-Rampur	754	...	...	...	...	...	...	...	...	...	...	...
	Sonthal Parganas, Jainty	575	...	...	...	...	1	1	...	1	...	...	...
	„ Raniganj	64	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	91,900	66	58	39	97	90	65	29	94	·99	1·16	1·06
Burma	Bhamo	...	...	...	...	...	...	...	...	...	...	...	...
Central Provinces	Chanda, Ballarpur	890	...	...	...	...	2	2	...	2	...	...	...
	Chhindwara, Pench Valley	1,477	1	1	...	1	3	3	...	3	·92	...	·68
	Narsinghpur, Mohpani	1,188	...	...	...	...	1	...	1	1	...	...	...
	Yeotmal	3	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	3,558	1	1	...	1	6	5	1	6	·42	...	·28
North-West Frontier Province.	Hazara	7	...	...	...	...	...	...	...	...	...	...	...
Panjab	Jhelum	943	...	...	...	...	...	...	...	...	...	...	...
	Mianwali	15	...	...	...	...	...	...	...	...	...	...	...
	Shahpur	91	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	1,049	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Coal)	143,459	111	128	41	169	223	184	48	232	1·39	·79	1·18

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1916—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths.			Number of serious non-fatal accidents.	Number of persons seriously injured.					
				Below ground.	Above ground.	Total deaths.		Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
						B.—MICA.							
Bihar and Orissa	Bhagalpur	23	...	...	...	...	...	...	...	...	...	...	...
	Gaya	1,890	...	...	...	...	...	...	...	...	...	...	...
	Hazaribagh	9,643	2	2	...	2	4	5	...	5	·32	...	·21
	Monghyr	374	...	...	...	...	1	3	...	3	...	...	...
	TOTAL	11,930	2	2	...	2	5	8	...	8	·26	...	·17
Madras	Nellore	4,201	...	...	...	...	2	3	...	3	...	...	...
	Salem	53	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	4,254	...	...	...	...	2	3	...	3	...	...	...
Rajputana	Ajmer-Merwara	299	...	...	...	...	...	...	...	...	...	...	...
	Nasirabad	8	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	307	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (MICA)	16,491	2	2	...	2	7	11	...	11	·18	...	·12
						C.—MANGANESE.							
Bombay	Belgaum	208	...	...	...	...	...	...	...	...	...	...	...
	Panch Mahals	1,564	...	...	...	...	4	...	4	4	...	...	...
	TOTAL	1,772	...	...	...	...	4	...	4	4	...	...	...
Central Provinces	Balaghat	5,677	...	...	...	...	5	...	5	5	...	...	...
	Bhandara	1,856	...	...	...	...	1	...	1	1	...	...	...
	Chhindwara	1,642	4	3	1	4	2	...	2	2	2·16	3·93	2·44
	Jabalpur	14	...	...	...	...	...	...	...	...	...	...	...
	Nagpur	4,284	1	1	...	1	1	...	1	1	·32	...	·23
	TOTAL	13,473	5	4	1	5	9	...	9	9	·38	·34	·37
Madras	Vizagapatam	293	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (MANGANESE)	15,538	5	4	1	5	13	...	13	13	·33	·30	·32
						D.—LIMESTONE.							
Central Provinces	Jabalpur-Katni	1,525	...	...	...	...	...	...	...	...	...	...	...
Panjab	Hoshiarpur	104	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (LIMESTONE)	1,629	...	...	...	...	...	...	...	...	...	...	...
						E.—SALT.							
Panjab	Jhelum	697	1	1	...	1	9	7	2	9	1·55	...	1·43
	Mianwali	77	...	...	...	...	...	...	...	...	...	...	...
	Shahpur	53	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (SALT)	827	1	1	...	1	9	7	2	9	1·29	...	1·21

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1916—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
			F.—GEMS.										
Burma	Mogok (Rubies, etc.)	1,202	1	...	1	1	2	2	...	2	...	1·84	·83
			G.—SLATE.										
Bihar and Orissa	Monghyr	229	...	...	...	...	1	...	1	1	...	...	...
Panjab	Gurdaspur	17	...	...	...	...	...	...	...	...	...	...	...
	Gurgaon	130	...	...	...	...	...	...	...	...	...	...	...
	Kangra	369	...	...	...	...	...	...	...	...	...	...	...
	Total	516	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Slate)	745	...	...	...	...	1	...	1	1	...	...	...
			H.—GOLD.										
Bihar and Orissa	Singhbhum	117	...	...	...	...	...	...	...	...	...	...	...
Madras	Anantapur	1,937	4	4	...	4	4	1	3	4	4·30	...	2·07
	GRAND TOTAL (Gold)	2,054	4	4	...	4	4	1	3	4	4·07	...	·39
			I.—IRON ORE.										
Bihar and Orissa	Puri	19	...	...	...	...	...	...	...	...	...	...	...
	Singhbhum	1,072	2	1	1	2	2	...	2	2	1·25	3·67	1·87
	Total	1,091	2	1	1	2	2	...	2	2	1·25	3·44	1·83
Central Provinces	Jabalpur	74	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Iron Ore)	1,165	2	1	1	2	2	...	2	2	1·25	2·74	1·72
			J.—WOLFRAM.										
Bihar and Orissa	Singhbhum	60	...	...	...	...	...	...	...	...	...	...	...
Burma	Mergui	301	1	1	...	1	2	2	...	2	5·00	...	3·32
	Tavoy	7,576	12	8	12	20	17	8	9	17	2·19	3·05	2·64
	Thaton	702	...	...	...	...	1	1	...	1	...	...	...
	Total	8,579	13	9	12	21	20	11	9	20	2·05	2·87	2·45
Central Provinces	Nagpur	21	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Wolfram).	8,660	13	9	12	21	20	11	9	20	2·03	2·84	2·42
			K.—MAGNESITE.										
Madras	Salem	1,440	...	...	...	...	1	...	1	1	...	...	...

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1916—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of injured.	Below ground.	Above ground.	Below and above ground.
			L.—CHROMITE.										
Baluchistan	Quetta-Pishin	35	...	...	...	...	...	...	..	...	...	...	...
	Zhob	439	...	...	...	...	...	...	...	...	...	...	...
	Total	474	...	...	...	...	...	...	...	...	..	...	...
Bihar and Orissa	Singhbhum	423	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Chromite)	897	...	...	...	...	...	...	...	...	...	...	...
			M.—COPPER ORE.										
Bihar and Orissa	Singhbhum	962	...	...	..	...	1	...	1	1	...	...	...
Burma	Katha	35	...	...	...	...	...	...	...	...	...	...	...
	Kyaukse	80	...	...	...	...	...	...	...	...		...	...
	Lower Chindwin	168	1	1	...	1	...	...	...	...	7·81	...	5·95
	Total	283	1	1	...	1	...	...	...	...	5·65	...	3·53
	GRAND TOTAL (Copper)	1,245	1	1	...	1	1	...	1	1	2·90	...	·80
			N.—BAUXITE.										
Central Provinces	Jabalpur	39	...	...	...	...	...	...	...	...	...	...	...
			O.—CLAY.										
Bihar and Orissa	Manbhum	62	...	...	...	...	...	...	...	...	...	...	...
	Palamau	31	...	...	...	...	...	...	...	...	...	...	...
	Total	93	...	...	...	..	...	...	...	...	...	...	...
Central Provinces	Jabalpur	288	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Clay)	381	...	...	...	...	...	...	...	...	...	...	...
			P.—GALENA.										
Central Provinces	Drug	57	..	...	...	...	...	...	...	...	...	...	..
			Q.—TIN.										
Bihar and Orissa	Hazaribagh	3	...	...	...	...	...	...	...	...	...	...	...
Burma	Mergui (Maliwan)	52	...	...	...	...	1	...	1	1	...	...	...
	Tavoy	70	...	...	...	...	...	...	...	...	...	...	...
	Thaton	1,500	..	...	...	...	...	...	...	...	...	...	...
	Total	1,622	...	..	..	...	1	...	1	1	...	...	...
	GRAND TOTAL (Tin)	1,625	...	...	...	...	1	...	1	1	...	...	...

APPENDIX II—*contd.*

Table No. 2—*concld.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1916—*concld.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				DEATH-RATE PER 1,000 PERSONS EMPLOYED.		
			Number of separate fatal accidents.	Number of Deaths.			Number of serious non-fatal accidents.	Number of Persons seriously injured.					
				Below ground.	Above ground.	Total deaths.		Below ground.	Above ground.	Total number of injured persons.	Below ground.	Above ground.	Below and above ground.
			R.—STEATITE.										
Central Provinces	Jabalpur	281	...	...	...	...	...	...	...	...	...	...	...
Madras	Kurnool	17	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (STEATITE).	298	...	...	...	...	...	...	...	...	...	...	...
			S.—FULLER'S EARTH.										
Central Provinces	Jabalpur	*	...	...	...	...	...	...	...	...	...	...	...
			T.—SILVER.										
Madras	Anantapur	† ...	...	...	...	...	...	...	...	...	...	...	...
			U.—GRAPHITE.										
Rajputana	Ajmer-Merwara	152	...	...	...	...	...	...	...	...	...	...	...
			V.—MOLYBDENITE.										
Burma	Tavoy	15	...	...	...	...	...	...	...	...	...	...	...
			W.—TITANIUM.										
Burma	Thaton	‡ ...	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (ALL MINES)	197,919	140	150	56	206	284	216	81	297	1·18	·79	1·04

* Figures included with those of Jabalpur limestone.
† Won from Anantapur gold mines.
‡ Figures included with those of Thaton wolfram mines.

APPENDIX II—*contd.*

Table No. 3.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1915, classified according to the age and sex of the workers.

Mineral.	Province and mineral field.	Number of separate fatal accidents.	Number of deaths.								
			Below ground.				Above ground.				Total below and above ground.
			Adult males.	Adult females.	Children (under 13).	Total.	Adult males.	Adult females.	Children (under 13).	Total.	
Coal	Assam, Lakhimpur	8	7	1	...	8	...	...	...	...	8
	Baluchistan—Kalat	1	1	...	...	1	...	...	...	...	1
	Baluchistan—Sibi	2	2	...	...	2	...	...	...	...	2
	Total Baluchistan	3	3	...	...	3	...	...	...	...	3
	Bengal, Raniganj	33	54	4	...	58	1	1	...	2	60
	Bihar and Orissa—Bokaro-Ramgarh	1	...	...	...	...	1	...	...	1	1
	Bihar and Orissa—Giridih	8	4	3	...	7	1	1	1	3	10
	Bihar and Orissa—Jharia, Hazaribagh	1	1	...	...	1	...	...	...	...	1
	Bihar and Orissa—Jharia, Manbhum	50	38	7	...	45	12	12	10	34	79
	Bihar and Orissa—Manbhum, Raniganj	6	3	2	...	5	1	...	...	1	6
	Total Bihar and Orissa	66	46	12	...	58	15	13	11	39	97
	Central Provinces, Chhindwara	1	1	...	...	1	...	...	...	...	1
	Total Coal	111	111	17	...	128	16	14	11	41	169
Mica	Bihar and Orissa, Hazaribagh	2	2	...	...	2	...	...	...	...	2
	Total Mica	2	2	...	...	2	...	...	...	...	2
Manganese	Central Provinces—Chhindwara	4	3	...	...	3	...	1	...	1	4
	Central Provinces—Nagpur	1	...	1	...	1	...	...	...	...	1
	Total Manganese	5	3	1	...	4	...	1	...	1	5
Salt	Panjab	1	1	...	...	1	...	...	...	...	1
Gems	Burma (Mogok)	1	...	...	...	...	1	...	...	1	1
Gold	Madras	4	4	...	...	4	...	...	...	...	4
Iron Ore	Bihar and Orissa, Singhbhum	2	...	...	1	1	1	...	...	1	2
Wolfram	Burma—Mergui	1	1	...	...	1	...	...	...	...	1
	Burma—Tavoy	12	8	...	...	8	12	...	...	12	20
	Total Wolfram	13	9	...	...	9	12	...	...	12	21
Copper Ore	Burma	1	1	...	...	1	1	...	...	...	1
Grand total (all minerals)		140	131	18	1	150	30	15	11	56	206

APPENDIX II—*concld.*

Table No. 4.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1915, classified according to cause of accident.

Mineral worked.	Number of separate fatal accidents.	Number of persons killed.											Death-rate per 1,000 persons employed.		
		Explosions of fire-damp.	Falls of roof.	Falls of side.	In shafts.	Suffocation by gases.	By explosives.	Irruptions of water or falling into water.	Haulage.	Miscellaneous below ground.	Surface.	Total deaths.	Below ground.	Above ground.	Below and above ground.
Coal	111	14	46	21	25	...	1	3	12	6	41	169	1·39	·79	1·18
Mica	2	...	...	2	...	...	...	...	...	...	...	2	·18	...	·12
Manganese	5	...	...	3	...	...	1	...	...	...	1	5	·33	·30	·32
Salt	1	...	...	...	...	...	...	...	...	1	...	1	1·29	...	1·21
Gems	1	...	...	...	...	...	...	...	...	...	1	1	...	1·84	·83
Gold	4	...	...	1	3	...	...	...	...	...	...	4	4·07	...	·39
Iron	2	...	...	1	...	...	...	...	...	...	1	2	1·25	2·74	1·72
Wolfram	13	...	...	7	...	...	2	...	...	...	12	21	2·03	2·84	2·42
Copper	1	...	...	...	1	...	...	...	...	...	...	1	2·90	...	·80
Total 1916	140	14	46	35	29	...	4	3	12	7	56	206	1·18	·79	1·04
Total preceding year.	163	1	51	42	17	...	7	3	17	13	37	188	1·23	·60	1·04
Difference	−23	+13	−5	−7	+12	...	−3	...	−5	−6	+19	+18	−·05	+·19	...

APPENDIX III.

PROSECUTIONS UNDER THE MINES ACT.

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1916.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bengal	Burdwan	1	1	1	Section 20, Rule 1 (*a*), of Notification No. 864-68—20, dated 10th March 1904, and Rule 50 of Notification No. 2068-82, dated 21st April 1906.	Proceedings instituted in 1915.
Bihar and Orissa	Manbhum	1	2	2	Section 20, Rules 1, 3 and 7 of Notification No. 864-68—20, dated 10th March 1904.	
Madras	Nellore	1	1	...	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	Warned.
Bihar and Orissa	Hazaribagh	1	1	1	Ditto ditto	
	Do.	1	2	2	Ditto ditto	
	Do.	1	2	2	Ditto ditto	
	Do.	1	2	...	Ditto ditto	Acquitted.
	Do.	1	1	1	Ditto ditto	
Bengal	Burdwan	1	1	1	Ditto ditto	
	Do.	1	1	1	Ditto ditto	
Bihar and Orissa	Manbhum	1	2	2	Ditto ditto	
	Do.	1	1	...	Ditto ditto	Acquitted.
	Do.	1	3	...	Ditto ditto	Not tried in 1916.
	Do.	1	3	2	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	2	2	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
	Do.	1	1	...	Ditto ditto	Absconded.
	Do.	1	1	...	Ditto ditto	Acquitted.
	Do.	1	2	2	Ditto ditto	
	Do.	1	1	1	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 13 (1) of the Indian Mines Act, 1901.	
Bengal	Burdwan	1	1	1	Section 15 of the Indian Mines Act, 1901, and Section 20 of Rules 2 (*b*) and 2 (*c*) of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Ditto ditto	
Bihar and Orissa	Manbhum	1	1	1	Section 20, Rule 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Ditto ditto	
	Do.	1	1	1	Ditto ditto	
	Do.	1	1	1	Ditto ditto	
	Do.	1	1	1	Ditto ditto	
Madras	Nellore	1	1	1	Section 20, Rule 21 of Notification No. 6436—152, dated 2nd September 1911.	
Bihar and Orissa	Manbhum	1	3	...	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	Not tried in 1916.
	Do.	1	2	...	Section 15 (2) of the Indian Mines Act, 1901.	Not tried in 1916.
	Do.	1	3	...	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	Not tried in 1916.

APPENDIX IV.

MISCELLANEOUS.

Statement No. 1.

List of Inspection Circles.

No. 1 Circle.	No. 2 Circle.
1. All mines in Bihar and Orissa except mines in the district of the Santhal Parganas and such mines in the district of Manbhum as lie east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the district.	1. All mines in Bengal.
2. All mines in Baluchistan.	2. Such mines in Bihar and Orissa as line in the district of the Santhal Parganas and in the district of Manbhum east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the district.
3. All mines in the North-West Frontier Province.	3. All mines in Bombay.
4. All mines in the Panjab.	4. All mines in the Central Provinces.
5. All mines in Rajputana.	5. All mines in Madras.
6. All mines in Assam.	6. All mines in Burma.

Statement No. 2.

List of holders of certificates as managers of coal mines in British India.

(*a*) Certificates granted to holders of English Certificates of competency.

FIRST CLASS.

NAME.	No. of Indian certificate.	Date of Indian certificate.	No. of English certificate.	Date of English certificate.
Russell, James	205	4th February 1916 .	152	30th July 1914.
Pollock, John	206	Ditto	3624	9th June 1910.
Cooper, Horace	207	27th November 1916 .	3481	22nd July 1909.
Evans, Richard	208	Ditto	204	22nd July 1915.
Farquhar, Andrew	209	Ditto	47	30th July 1913.

(*b*) Certificates of competency.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Barrowman, Alexander . . .	83	30th March 1916.	
Bapty, Frederick	84	Ditto	
Greer-Spencer, Benjamin . . .	85	Ditto	
Nag, Hemanta Kumar . . .	86	Ditto	
Lawton, Henry	87	Ditto	
Hunter, Roger Joseph	88	Ditto	
Penfold, Douglas Kent . . .	89	Ditto	
Hunter, George	90	Ditto	
Payne, James Harold Willoughby . .	91	Ditto	

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 2—*concld.*

List of holders of certificates as managers of coal mines in British India—*concld.*

(*b*) Certificates of competency—*concld.*

SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Grieveson, Thomas John	118	30th March 1916.	
Adamson, Bertram	119	Ditto.	
Mukherji, Probodh Chandra	120	Ditto.	
Mehta, Sant Ram	121	Ditto.	
Roy, Upendra Nath	122	Ditto.	
Mittra, Surendra Chandra	123	Ditto.	
Sen, Dhirendra Nath	124	Ditto.	
Slatter, Robert Anderson Foxcroft	125	Ditto.	
Cowan, William Barrington	126	Ditto.	
Ghose, Hari Prasanna	127	Ditto.	
Basu, Hara Kali	128	Ditto.	
Pal, Shib Narayan	129	Ditto.	
Sanyal, Bhupati Bhusan	130	Ditto.	
Chakravarty, Profulla Ranjan	131	Ditto.	
Roy Chowdhury, Abala Bandhu	132	Ditto.	

(*c*) Certificates of service.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Loving, Osmond Davis	139	4th February 1916.	
Ramjidass Cacker	140	Ditto.	

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 3.

List of Universities and Colleges approved by the Governor-General in Council for the purposes of Rules 32 and 33 under the Indian Mines Act, 1901.

Name of Institution and Degree or Diploma.	Date.
University of Birmingham in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	11th June 1904.
University College of Bristol in respect of its Senior Diploma in Mining.	16th September 1904.
University of Cambridge in respect of its Diploma in Mining Engineering.	6th June 1905.
University of Durham in respect of its Degree of B.Sc. in Mining	21st December 1903.
Durham College of Science in respect of its Diploma in Mining .	29th June 1904.
University of Glasgow in respect of its Degree and Diploma in Mining.	28th September 1904.
Glasgow and West of Scotland Technical College in respect of its Diploma in Mining.	28th June 1904.
University of Leeds in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	21st November 1904.
University of London in respect of its B.Sc. Degree in Mining for Internal Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	9th June 1905.
University of London in respect of its B.Sc. Degree in Mining for External Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	7th August 1906.
Royal School of Mines in respect of its Associateship in Mining .	24th March 1904.
University of Oxford in respect of its Diploma B. for Colliery Engineers (in Scientific Engineering and Mining subjects).	11th February 1905.
University College of Sheffield in respect of its Diploma in Mining.	15th July 1904.
University College of South Wales and Monmouthshire in respect of its Diploma in Mining.	19th April 1904.
Wigan Mining and Technical College in respect of its Diploma in Mining.	26th August 1904.
Civil Engineering College, Sibpur, in respect of its Diploma in Mining.	22nd February 1907.
Merchant Venturers' Technical College, Bristol, in respect of its Diploma in Mining Engineering.	5th October 1905.
Victoria University of Manchester in respect of its Degree and Certificate of Mining.	14th February 1906.
University College of Nottingham in respect of its Diploma in Mining Engineering.	28th March 1906.
University of Sheffield in respect of its Degree of Bachelor of Engineering (Mining).	30th June 1906.
Heriot-Watt College in respect of its Certificate in Mining Engineering.	16th January 1908.
Calcutta University in respect of its Degree of Bachelor of Engineering in the branch of Mining Engineering.	24th September 1910.
Harvard University, Cambridge, Massachusetts, in respect of its Diploma in Mining Engineering.	22nd February 1913.
Columbia University, New York, in respect of its Degree of Engineer of Mines.	13th March 1915.
California University, United States of America, in respect of its Degree of Mining Engineer.	19th February 1916.
Pittsburg University, United States of America, in respect of its Degree of Engineer of Mines.	19th February 1916.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 4.

SIBPUR COLLEGE.

THE MINING CLASSES.

CIRCULAR.

A course for the Diploma in the "Principles of Mining" is offered.

The course of instruction is designed to afford theoretical training in the Principles of Mining generally, to prepare students for positions of responsibility on coal or metal mines, and in the case of students attending for instruction in coal-mining, to qualify them to appear at the examinations for mine managers as required by the Indian Mines Act. Students who obtain the College Diploma may be granted a reduction of two years in the qualifying period of practical work in a coal mine required of candidates for a colliery manager's certificate.

ARRANGEMENT OF CLASSES AND SESSIONS.

First or Preliminary year.—Admissions about the end of January to this year, in which Mechanical, Electrical and Mining students are taught together. The session lasts for about 14 months.

Second or Junior year.—Promotion to this class in April. Civil Engineering students who passed the Sub-Overseer examination are also admitted to the Mining classes at this stage.

Third or Senior year.—Promotion to this class in April. The examination for the Diploma in Mining is held at the end of this year.

(The possession of a certificate gives the holder no claim to any appointment under Government.

The course covers three years (all at the College), preparing students for the examination for the Government Diploma in the "Principles of Mining." The first or Preliminary year is common to the course in Mechanical and Electrical Engineering. Specialized instruction in Mining is offered only in the last two years, during which six weeks is spent each year in learning practical Mine Surveying and in visiting collieries.

Admission to the Mechanical and Electrical Engineering and Mining Courses.—Admission to the first or Preliminary year of the Mechanical and Electrical Engineering and Mining Courses is made on the third Monday in January. Candidates must be qualified, as laid down above, for admission to the first year of the Sub-Overseer classes (B Final certificate-holders are admitted only to the first or Preliminary year of the Mechanical and Electrical and Mining Courses).

Applications must be received at the Principal's office by the first day in January.

Age.—No one over 20 years of age on 1st January of year of admission will be admitted to the Mining and Mechanical and Electrical Engineering Courses.

Admission of special students to the Mining Classes.—Provided there is room, persons who have completed at least two years' practical work upon a mine may be admitted in November direct to the junior year of the Mining Course as special students, irrespective of age, provided that their general education is such as to enable them to follow the course with profit. They must apply for admission before 1st July, producing statements from the managers under whom they have served, showing the nature of their employment and period.

Two places in the Mechanical and Electrical Engineering and two places in the Mining Courses are reserved for students from Bihar and Orissa.

The total number of admissions to the above courses in Civil and Mechanical and Electrical Engineering and Mining is limited to 60. Preference is given to admissions to the junior years of the Upper Subordinate, the Mechanical and Electrical Engineering and Mining Courses and to the second year of the Sub-Overseer Courses. The number admitted to the Civil and Mechanical and Electrical and Mining Branches is regulated by the Principal, so that the total number in any combined class does not exceed 60, nor in any special branch shall it exceed 30.

In determining the age of candidates for admission, Indian students must produce a certificate signed by the Head Master of the School from which he matriculated certifying as to the age statement made by his guardian on the occasion of his first going to school; European students must produce their baptismal certificates.

FOOT-NOTE.—Drawing Syllabus.—*Geometrical.*—Division of lines and angles, construction of triangles and quadrilaterals, construction of regular polygons, inscribing triangles, polygons and circles in geometrical figures, construction of circles touching lines and circles, equality of areas, division of areas, construction of angles, use of protractor.

Free-hand.—Free-hand drawing of simple ornaments, etc., to larger or reduced sizes.

Candidates may be excused the Drawing Test in 1915, but are recommended to take it, if possible.

* In 1917 admission to the Overseer Course will be made in April immediately the results are announced. Applications must be in the Principal's office on or before 30th March.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 4—*concld.*

Medical Examination.

Every applicant must before admission present himself before the Medical Officer resident at the College for examination as to his eyesight, physical strength and fitness for manual labour. In the case of those resident at a distance, a Civil Surgeon's certificate will be accepted. Candidates not protected by vaccination must be vaccinated before admission.

Any student unable to join the College on the date mentioned in his admission letter must send by that date Rs. 9 of the first instalment of fees in order to secure his seat; failing this, another student will be admitted in his place. He must also bring with him, when he joins, a medical certificate from a Civil or Assistant Surgeon testifying his inability to join on the proper date, failing which he will be liable to a fine of Rs. 10.

Vacation.

The College will be closed for the long vacation from about the middle of August to the first Monday in November. No students may remain at the College during this period, except such as may be detained on duty by the Principal.

Residential Arrangements.

All students must be resident.

There are separate furnished barrack accommodation and messing arrangements for 36 Europeans and Anglo-Indians, 171 Hindus and 16 Muhammadans.

On account of the greater cost of living at the College owing to the small number of Muhammadan students, Government maintains a cook and one other servant, and pays a stipend to each Muhammadan student varying from Rs. 6 to Re. 1 a month according as there may be one or sixteen resident Muhammadans.

College Dues.

		Rs.	
Initials—			
Entrance fee, mess ...	...	2	Non-returnable.
Entrance fee, athletic club	...	1	Non-returnable.
Caution-money deposit	...	25	Balance after paying College dues returnable if applied for within three years from date of leaving College.
Monthly—			
Tuition	...	3	payable for each month of the year.
Electric light ...	...	1	payable for ten months of the year.
Board (session), 9½ months	...		Europeans, Rs. 25; Hindus, Rs. 12.
„ (vacation), 2½ „	...		Europeans, Rs. 5; Hindus, Rs. 2-8.
Athletic Club ...	...	1	in March, June and November.

Free studentships.—A total number of five are available for European students.

Reduced feeships.—A total number of 25 reduced feeships are available for Europeans. These reduce the fees to Rs. 5 for messing payable for 12 months in addition to the electric light and athletic club fees.

A total number of 40 reduced feeships are available for Indians. These reduce the fees to Rs. 2 for messing, payable for 12 months in addition to the electric light and athletic club fees.

Note.—Free and reduced feeships apply only to students whose parents or guardians reside within the limits of the jurisdiction of the Governor of Bengal, but the sons of employés of the East Indian Railway, Bengal-Nagpur Railway or Eastern Bengal Railway, of soldiers serving in India, of Survey, Telegraph and other Government officers who are liable to employment in Bengal, or pensioners who, when on active service, were liable to be so employed, are eligible for election.

Forms of application for the reduced feeships are available in the Principal's office.

These free and reduced feeships are awarded by the Board of Visitors after the commencement of the session from among students who have joined.

A small sum of money from the Mohsin Fund is placed at the disposal of the Principal for the payment of half the tuition fees of a limited number of poor Muhammadan students residents of Bengal.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5.

MINING INSTRUCTION IN BENGAL AND BIHAR AND ORISSA.

[*The Mining Educational Advisory Board desire that Colliery Managers will kindly publish this information in their collieries. An appeal is also made to them to support the lectures by seeing that members of their colliery staff, who are suitable, take advantage of the lectures and attend them regularly.*]

RANIGANJ AND JHARIA COALFIELDS.

Lectures will be delivered throughout the session at the following centres on the syllabus laid down for the first-year course :—

Place and days.	*Lecturer and Local Secretary.*
(1) Lecture-room near the Jharia Club, at 5-30 P.M., on Mondays. (2) Lecture-room near Sijua station, at 5 P.M., on Tuesdays. (3) Lecture-room near Dishergarh Club, at 5-30 P.M., on Wednesdays. (4) Railway Institute, Raniganj, at 5 P.M., on Thursdays. (5) Lecture-room at Messrs. Apcar Co.'s Charanpur Colliery, at 5-30 P.M., on Fridays.	Mr. H. C. Read, Mining Instructor, Muslia, Asansol.

The course of instruction, consisting of not less than 30 lectures, will commence the first week in September and end in the following April in which month an examination will be held. Candidates who pass the examination will receive a certificate recording their success. No candidate will, however, be permitted to sit for the examination unless he has attended 50 per cent. of the lectures and received 40 per cent. of the marks allotted for home work.

All Europeans and English-speaking Indians are cordially invited to attend.

Rupees 100 monthly is offered in Scholarships awarded by the Mining Education Advisory Board on the results of the Sessional Examination, these will be tenable for two years at the Sibpur College and are granted to enable the holders to attend the full course for the Diploma in the Principles of Mining. One Scholarship of Rs. 50 is reserved for Europeans and two of Rs. 25 are awarded for Indians.

The following Sub-Committees have been appointed for each centre :—

RANIGANJ DISTRICT.

Dishergarh Centre.	*Charanpur Centre.*	*Raniganj Centre.*
Mr. G. C. Leach, *Chairman.*	Mr. G. C. Leach, *Chairman.*	Mr. G. C. Leach, *Chairman.*
„ Glen George (Dishergarh).	„ T. Samson (Charanpur).	„ P. S. Keelan (Charanpur).
„ Geo. Miller (Sitarampur).	„ R. Mitchell (Nandi).	„ J. Mackintosh (Raniganj).
„ F. Owen (Dishergarh).	„ E. M. Patterson (Charanpur).	„ W. J. Rees (Raniganj).
Babu M. N. Ray (Begunia).	„ W. S. Elphinstone (Asansol).	Babu Promotho Nath Hazra (Toposi).
„ P. C. Tarafdar (Mugma).	Babu Atul Shashi Mitra (Asansol).	„ Kali Kumar Misra. (Searsole Raj Estate).
„ Hari Pada Mukharji (Mugma).		„ S. Chaudhuri (Jamehari, Raniganj).

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5—*contd.*

JHARIA DISTRICT.

Jharia Centre.

Mr. R. R. Simpson, *Chairman.*
„ R. G. M. Bathgate (Jamadoba).
„ J. S. Kean (Jamadoba).
„ E. D. James (Lodna).
„ R. Barrowman (Standard Coal Company, Jharia).
Babu Gobhurdhan Das Manishankar (Jharia).
„ Narendra Nath Sarkar (South Kujama, Jharia).

Sijua Centre.

Mr. R. R. Simpson, *Chairman.*
„ A. A. Agabeg (Sijua).
„ R. Heron (Sinidih, Katrasgarh).
„ B. Starksfield (Bansjora).
„ H. M. Bull (Bansjora).
Babu Trikundas Doyal (Bansjora).
„ Basanta Kumar Ray (Kurkend).

SYLLABUS OF THE COURSE OF INSTRUCTION.

The course will treat principally of the more practical operations in actual mining, *with special reference to India*, and the principles underlying such operations will be thoroughly discussed. Special attention will be paid to the various methods of working thick seams. Sketches illustrating the lectures will be distributed free of charge.

At the close of each lecture questions will be set for home work.

FIRST-YEAR COURSE.

1. *Geology.*—General structure of the crust of the earth; descriptions of fault, dyke, outcrop, dip, strike, unconformity, etc.; composition and properties of coal; special reference to the coal measures in India; importance of recording results of observations.

2. *Exploration.*—Advantages of borings; driving through faults, wash-outs, dykes, methods of maintaining the direction and gradient of such drivages.

3. *Boring and winning.*—Different systems of borings; choice of methods; cost of boring; winning coal by inclines, adits, shafts, and cross-cuts.

4. *Sinking.*—Site of colliery; position of shafts, excavation and shape; blasting with use of safety fuse and electric battery; explosives and detonators, their safe storing and handling; sinking and how to deal with difficulties: apparatus and tools used; lining shafts and scaffolding; pit banking arrangements.

5. *Opening out and methods of working surveying.*—Shafts; pillars; arching or supporting the pit bottom; quarrying; pillar and stall; double road stall; long wall; panel systems.

6. *Timbering and supporting.*—Fixing of props and double timber, chocks or cogs; special methods of timbering to withstand pressure from the roof, sides and floor; securing dangerous holes in the roof due to heavy falls; use of iron or steel girders; stowing and packing; arching.

7. *Gases met with in coal mines.*—Their experimental preparation by chemicals, and illustration of their physical and physiological properties; methods of detecting explosion and gob fires.

8. *Ventilation.*—Natural and artificial methods; coursing the air; use of stoppings, brattices, doors, air bridges, regulators; measuring the quantity of air, use of thermometer, barometer; water-gauge, anemometer; the friction of air in mines and the elementary theory of splitting.

9. *Safety lamps.*—Theory of safety lamps, Sir Humphrey Davy's experiment; the Davy lamp, the Clanny and Thomas and Williams lamps, the Marsuat and Mueseler lamps, fire-damp detectors.

SECOND-YEAR COURSE.

1. *Mechanical Engineering of collieries.*—Winding engines, discussion of the different types, calculation of the dimensions of cylinders, length of stroke, diameter of drum, etc.; strength of winding ropes and chains, detaching hooks, capping and winding ropes, care and examination of ropes.

2. *Pumping.*—Importance of a good system; measurement of quantities of water; lifting and forcing pumps; pumps for sinking; temporary and permanent pumps; calculation of dimensions of pumps to perform a given duty, strength of pipes, methods of supporting; different types of joints.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5—*concld.*

SECOND-YEAR COURSE—*concld.*

3. *Hauling.*—Tramways, tubs and waggons ; conveyance by self-acting inclines ; single-rope haulage ; main and tail ; endless rope ; endless chain ; calculations concerning inclines, sizes of haulage engines, ropes, etc. ; signalling ; capping of haulage ropes.

4. *Methods of working and ventilation.*—Revision of first-year course work, followed by a fuller treatment of these subjects.

5. *Surface arrangements.*—Boilers ; Cornish, Lancashire, and water-tube types ; boiler fittings, injectors, and steam-pipes, etc. ; boiler explosions, incrustation, corrosion and priming ; calculations of boilers. Heap steads ; arrangement of roads around pit bank ; simple screening and sizing.

6. *Transmission of power.*—By steam, compressed air, and electricity, discussing the relative merits of each system.

Text-books recommended.—Peel's or Kerr's Elementary Mining ; O'Donoghue's Mining Arithmetic.

B. HEATON,

(Principal, Civil Engineering College),

Secretary to the Mining Educational Advisory Board.

SIBPUR COLLEGE,

Calcutta, the 12th July 1916.

Statement No. 6.

No. 5072-113.

GOVERNMENT OF INDIA.

DEPARTMENT OF COMMERCE AND INDUSTRY.

NOTIFICATION.

GEOLOGY AND MINERALS.

Dated Simla, the 1st July, 1916.

In exercise of the powers conferred by Section 20 of the Indian Mines Act, 1901 (VIII of 1901), the Governor-General in Council is pleased to make the following amendments in the rules issued with Notification No. 11793-103 (Geology and Minerals), dated the 30th December 1908, namely :—

(1) *For* Rule I *substitute* the following, namely :—

Annual returns.

Forms I, II, III, IV, V and VI, respectively, for coal, mica and mines other than coal or mica, in the Schedule hereto annexed shall be (1) filled up in duplicate by the agent or if there is no agent, by the owner or manager of a coal, mica or other mine, as the case may be, and one copy of each shall be forwarded to the Chief Inspector of Mines and the other to the District Magistrate not later than the 21st January (2) in each year.

(2) In rule 8 *for* the words "Form V" *substitute* the words "Form VII."

(3) *For* the Schedule appended to the Rules the following shall be *substituted*, namely :—

(1) Under Section 22 (2) (b) of the Indian Mines Act, failure to forward correct returns to the Chief Inspector of Mines not later than the 21st January in each year will render the agent, owner or manager liable, on conviction, to a penalty which may extend to Rs. 500.

(2) It will greatly facilitate the preparation of the statistics if the returns are despatched as soon as possible after the close of the year.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6.—*contd.*

THE SCHEDULE.

COAL MINES.

FORM I.

Annual Return for the year ending on the 31st December 19 .

1. Name of Mine _____

2. Postal address of Mine _____

3. Date of opening _____

4. Date of closing (if closed) _____

5. Situation of Mine { District _____ / Province _____

6. { Name of Owner _____ / Postal address of Owner _____

7. { Name of Managing Agents (if any) _____ / Postal address of Managing Agents (if any) _____

8. { Name of Agent (if any) as defined in section 3 (*a*) of the Indian Mines Act _____ / Postal address of Agent _____

9. { Name of Manager _____ / Postal address of Manager _____

10. Means by which coal is raised from the mine, *i.e.*, hand labour, mechanical or electrical power _____

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM II.

Persons employed during the year ending on the 31st December 19 .

		DAILY AVERAGE NUMBER OF PERSONS EMPLOYED AS CALCULATED BY DIVIDING THE AGGREGATE NUMBER OF ATTENDANCES BY THE NUMBER OF DAYS WORKED.								
		In the Mine.				On surface and not in the mine, including all officials and persons employed on sidings, loading wharves, private railways and surface tramways and also in carting.				
Aggregate number of daily attendances during the year of persons permanently and temporarily employed.	Number of days worked.	Males over 12 years of age.	Females over 12 years of age.	Children under 12 years of age.	Total.	Males over 12 years of age.	Females over 12 years of age.	Children over 12 years of age.	Total.	Gross total obtained by adding totals in columns 6 and 10. This should equal the number obtained by dividing the number in column 1 by the number in column 2.
1	2	3	4	5	6	7	8	9	10	11
Total ...										

FORM III.

Explosives, safety lamps and mechanical ventilators.

Explosives.			Safety Lamps.				Mechanical Ventilators.		
Name of explosive.	Quantity used in lbs.	Number of Detonators used.	Name of safety lamps.	Number of safety lamps and method of locking.			Name of mechanical ventilator.	Average total quantity of air produced per minute.	Water gauge obtained.
				Screw.	Lead rivet.	Magnetic.			
Total ...									

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM IV.

Output for year ending on the 31st December 19 .

Kind of coal.	Opening stock on 1st January 19 .	Raisings (including colliery consumption and coal used for coke making).	Value of raisings. ("Value" means and should be calculated upon actual or estimated selling price into wagons at the mine.)	Despatches.	Colliery consumption (exclusive of coal used for coke making).	Coal delivered to coking.	Closing stocks on 31st December 19 .	COKE MADE.	
								Hard coke in ovens.	Soft coke in open heaps or ovens.
1	2	3	4	5	6	7	8	9	10
	Tons.	Tons.	Rs.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
STEAM									
SLACK (including rubble and dust).									
TOTAL ...									

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM V.

Accidents and Prosecutions.

Number of separate Accidents reported during the year.			Number of persons.		Number of prosecutions under the Act, with the sections under which the prosecutions were instituted and the rules violated.	Number of persons convicted under the Act, with the sections under which the convictions were obtained.
Fatal.	Serious.	Total.	Killed.	Seriously injured.		
1	2	3	4	5	6	7
Total ...						

FORM VI.

Epidemic Diseases.

Name of disease.	Date of appearance.	Date of disappearance.	Number of cases.	Number of deaths.
Cholera				
Plague				
Small-pox				

Signature of Agent, or, if there is no Agent, of Owner or Manager._____

(If the form is signed by Managing Agents the words "for owners" should be added.)

*Date of Signature*_____

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

MICA MINES.

FORM I.

Annual Return for the year ending on the 31st December 19

1. Name of Mine_____

2. Date of opening_____

3. Date of closing (if closed)_____

4. Means by which mica is raised from the mine, *i.e.*, hand labour, mechanical or electrical power_____

5. Situation of Mine
   - District_____
   - Province_____

6.
   - Name of Owner_____
   - Postal address of Owner_____

7.
   - Name of Managing Agents (if any)_____
   - Postal address of Managing Agents (if any)_____

8.
   - Agent (if any) as defined in section 3 (*a*) of the Indian Mines Act_____
   - Postal address of Agent_____

9.
   - Name of Manager_____
   - Postal address of Manager_____

10.
   - Name of person in charge at mine_____
   - Postal address of person in charge at mine_____

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM II.

Persons employed during the year ending on the 31st December 19 .

		DAILY AVERAGE NUMBER OF PERSONS EMPLOYED AS CALCULATED BY DIVIDING THE AGGREGATE NUMBER OF ATTENDANCES BY THE NUMBER OF DAYS WORKED.								
		In the Mine.				On surface and not in the mine. Including all officials and persons employed on sidings, loading wharves, private railways and surface tramways and also in carting.				
Aggregate number of daily attendances during the year of persons permanently and temporarily employed.	Number of days worked.	Males over 12 years of age.	Females over 12 years of age.	Children under 12 years of age.	Total.	Males over 12 years of age.	Females over 12 years of age.	Children under 12 years of age.	Total.	Gross total obtained by adding totals in columns 6 and 10. This should equal the number obtained by dividing the number in column 1 by the number in column 2.
1	2	3	4	5	6	7	8	9	10	11
Total										

FORM III.

Particulars of Explosives.

Explosives.		
Name of explosive.	Quantity used in lbs.	Number of detonators used.
Total		

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM IV.

Output for year ending on the 31st December 19 .

Total amount of mica raised. The figures should be stated in cwts. and lbs.	Total value at the mine of mica raised. ("Value" means and should be calculated upon actual or estimated selling price at the mine. Any charges incurred in transporting the mica outside the mine should not be included. Figures should relate to the quantity and value of mica consigned.)
1	2
TOTAL ...	

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM V.

Accidents and Prosecutions.

Number of separate accidents reported during the year.			Number of persons.		Number of prosecutions under the Act, with the sections under which the prosecutions were instituted and the rules violated.	Number of persons convicted under the Act, with the sections under which the convictions were obtained.
Fatal.	Serious.	Total.	Killed.	Seriously injured.		
1	2	3	4	5	6	7
Total						

FORM VI.

Epidemic Diseases.

Name of disease.	Date of appearance.	Date of disappearance.	Number of cases.	Number of deaths.
Cholera . . .				
Plague				
Small-pox . . .				

Signature of Agent, or, if there is no Agent, of Owner or Manager_____

(If the form is signed by Managing Agents the word "for owners" should be added.)

*Date of Signature*_____

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

MINES OTHER THAN COAL OR MICA.

FORM I.

Annual return for the year ending on the 31st December 19 .

1. Name of Mine _____

2. Date of opening _____

3. Date of closing (if closed) _____

4. Means by which mineral is raised from the mine, *i.e.*, hand labour, mechanical or electrical power _____

5. Situation of Mine { District _____ / Province _____

6. { Name of Owner _____ / Postal address of Owner _____

7. { Name of Managing Agents (if any) _____ / Postal address of Managing Agents (if any) _____

8. { Agent (if any) as defined in section 3 (*a*) of the Indian Mines Act _____ / Postal address of Agent _____

9. { Name of Manager _____ / Postal address of Manager _____

10. { Name of person in charge at mine _____ / Postal address of person in charge at mine _____

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM II.

Persons employed during the year ending on the 31st December 19 .

		DAILY AVERAGE NUMBER OF PERSONS EMPLOYED AS CALCULATED BY DIVIDING THE AGGREGATE NUMBER OF ATTENDANCES BY THE NUMBER OF DAYS WORKED.								
		In the mine.				On surface and not in the mine. Including all officials and persons employed on sidings, loading wharves, private railways and surface tramways and also in carting.				
Aggregate number of daily attendances during the year of persons permanently and temporarily employed.	Number of days worked.	Males over 12 years of age.	Females over 12 years of age.	Children under 12 years of age.	Total.	Males over 12 years of age.	Females over 12 years of age.	Children under 12 years of age.	Total.	Gross total obtained by adding totals in columns 6 and 10. This should equal the number obtained by dividing the number in column 1 by the number in column 2.
1	2	3	4	5	6	7	8	9	10	11
Total ...										

FORM III.

Particulars of Explosives.

Explosives.		
Name of explosive.	Quantity used in lbs.	Number of detonators used.
Total ...		

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM IV.

Output for year ending on the 31st December 19 .

Name of mineral raised, and metal (if any) extracted.	Total amount of mineral raised. The figures should be stated :— (*a*) in the case of gem-stones in carats ; (*b*) in the case of alum, amber, asbestos, chromite, corundum (not being gem-corundum), graphite, jadestone, steatite, tin-ore, tungsten-ore in cwts., or where the circumstances require greater particularisation in order to give an accurate estimate of small outputs, in cwts. and lbs. Output of radio-active minerals and rare minerals such as molybdenite, monazite, pitchblende, samarskite, tantalite, triplite, should be returned in cwts. or, where necessary, in cwts. and lbs. ; (*c*) in the case of clay, limestone, magnesite, marble, phosphatic rock, salt, slate and other stone, and all metalliferous ores except those referred to in (*b*), in tons.	Total value at the mine of mineral raised. ("Value" means and should be calculated upon actual or estimated selling price at the mine. Any charges incurred in transporting the mineral outside the mine property should not be included.)	Quantity of metal or metals extracted the mine. Each metal should be shown separately :— (*a*) in the case of gold, silver and other precious metals in Troy ounces ; (*b*) in the case of tin, in cwts. and fractions of cwts ; (*c*) in the case of other metals in tons and fractions of tons.	Value of metal or metal extracted at the mines. The value of each metal should be shown separately.
1	2	3	4	5
TOTAL ...				

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*contd.*

FORM V.

Accidents and Prosecutions.

Number of separate Accidents reported during the year.			Number of persons.		Number of prosecutions under the Act, with the sections under which the prosecutions were instituted and the rules violated.	Number of persons convicted under the Act, with the sections under which the convictions were obtained.
Fatal.	Serious.	Total.	Killed.	Seriously injured.		
1	2	3	4	5	6	7
Total ...						

FORM VI.

Epidemic Diseases.

Name of disease.	Date of appearance.	Date of disappearance.	Number of cases.	Number of deaths.
Cholera				
Plague				
Small-pox				

Signature of Agent, or, if there is no Agent, of Owner or Manager_____

(If the form is signed by Managing Agents the words "for owners" should be added.)

Date of Signature _____

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 6—*concld.*

FORM VII.

Notice of Accident.

FROM—

To—The Inspector of Mines, through the $\frac{\text{District}}{\text{Sub-divisional}}$ Magistrate of

Dated 19 .

SIR,

I have the honour to furnish the following particulars of * $\frac{\text{fatal}}{\text{serious}}$ accident / an accidental explosion which has occurred at the Mine :—

1. Situation of the mine. (Village, Station, District, Province.)	
2. Mineral worked	
3. Name and postal address of owner ...	

4. Name and sex of persons		Age.	Occupation.
Killed.	Injured.		

5. Date and hour of accident ...	
6. Place of accident	
7. Cause and description	
8. Classification of accident (1) ...	
9. Nature of injury, and if fatal cause of death.	

I have the honour to be,

SIR,

Your most obedient servant,

Owner,
Agent.
Manager.

(1) *Under one or other of the following heads, namely :—*

(1) *Explosions of fire damp ; (2) falls of roof ; (3) falls of sides ; (4) in shafts (overwinding) ; (5) in shafts (ropes and chains breaking) ; (6) in shafts (whilst ascending or descending by machinery) ; (7) in shafts (falling into the shafts from the surface) ; (8) in shafts (falling from part of the way down) ; (9) in shafts (things falling from the surface) ; (10) in shafts (things falling from part of the way down) ; (11) in shafts (miscellaneous) ; (12) suffocation by gases ; (13) by explosives ; (14) irruptions of water or falling into water ; (15) haulage ; (16) by underground machinery ; (17) sundries underground ; (18) by surface machinery ; (19) surface boilers or pipes bursting ; (20) on surface railways or tramways belonging to the mine ; (21) miscellaneous on surface.*

C. E. LOW,

Secretary to the Government of India.

APPENDIX IV—*concld.*

MISCELLANEOUS—*concld.*

Statement No. 7.

LAND ACQUISITION (MINES) ACT, 1885.

Particulars required to be furnished by colliery owners to Local Governments when giving notice under Section IV of the Land Acquisition (Mines) Act, 1885, of their intention to work coal under land acquired for a railway:—

(*a*) The name, residence and profession of the person giving the notice.

(*b*) The name of the mine, together with that of the village and district in which the mine is situate.

(*c*) The name of the railway line or of the siding and the main line to which the siding is attached, under which the mine is situate.

(*d*) The names of the railway stations and the mileage between which the said siding or the said portion of the railway land, under which the mine is situate falls.

(*e*) The number and date of the declaration under which the land was acquired.

(*f*) A tracing showing the boundaries of, and the area over which, the acquired land extends.

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Department of Mines, India

2602
- XVIII

REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA

Under the Indian Mines Act (VIII of 1901)

FOR THE

YEAR ENDING 31st DECEMBER

1917

BY

G. F. ADAMS, M. Inst. C. E.
Chief Inspector of Mines in India

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FROM

G. F. ADAMS, ESQ., M.INST., C.E.,
Chief Inspector of Mines in India,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,
DEPARTMENT OF COMMERCE AND INDUSTRY.

Dated Dhanbad, the 13th June, 1918.

SIR,

I HAVE the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1917.

EXPLANATORY INTRODUCTION.

It is necessary to explain that this is a report relating entirely to the administration of the Indian Mines Act, 1901, and is not a complete statistical review of Indian mining and analogous industries. It should be remembered in reading the statistics that there must be a considerable output from quarries which are under 20 feet deep; and owing to the exclusion of such places from the scope of the Mines Act, these figures should not be regarded as a complete index to the production of the mineral wealth of the country.

Figures of production of all minerals raised in British India and the Native States, whether from workings under the Act or not, are published annually in the Records of the Geological Survey of India, whilst every five years a Quinquennial Review of the Mineral Production of India is issued by the same Department. The latest review published is that for the years 1909-13 (Records, Geological Survey of India, Volume XLVI). Figures for Mysore, where most of the Indian gold is raised, are given in the report of the Chief Inspector of that Native State, and mineral statistics may also be found in the administrative reports of the various Presidencies, Provinces and States of India.

This report is divided into five sections, *viz.* :—

Section I.—Persons employed.
„ II.—Output of mineral.
„ III.—Accidents.
„ IV.—Prosecutions and additions to the Act.
„ V.—General remarks.

Section I.—Persons employed.

During the year 1917 the average number of persons working in and about the mines regulated by the Indian Mines Act was 211,881 of whom 133,042 worked underground and 78,839 on the surface. This is an increase of 13,962 workers or 7·05 per cent.

One hundred and thirty-one thousand six hundred and seventy-two were adult males, 72,770 were adult females and 7,439 were children under 12 years of age.

Those employed in coal mines numbered 153,683, which is an increase of 10,224, compared with those employed in 1916.

In spite of this increase the owners of the larger coal mines in Bengal and in Bihar and Orissa were badly off for labour, specially during the latter part of the year and complaints were rife that such labour as did attend did far less work than usual. The reasons were partly the good harvest of 1916 and an abnormal monsoon in 1917, which gave heavy rain and which lasted beyond the usual period, but the unusual condition of the coal trade referred to in the next section undoubtedly played its part and influenced the distribution of labour.

The Committee appointed by the Government of Bihar and Orissa, to investigate the question of the housing of labourers at the collieries in the Province, as mentioned in the last report, held several meetings and submitted their report.

In Assam Sirdari recruiting resulted in 491 labourers being recruited by 245 Sirdars, as against 491 in 1916 by nearly 400 Sirdars, while 113 Makranis were obtained, as against 175. There was, however, an increase in the recruitment of Nepalese, the figures being 949 as against 661. The figures include women and children. The Sirdari recruiting appears to have been affected by war recruiting. The same remark applies to the collieries in the Central Provinces, where labour was scarce and there was a difficulty in inducing coolies to leave their homes.

In the Bihar and Orissa mica-fields, labour shortage was very much felt, but towards the end of the year vigorous recruiting improved the position for the time being. A Labour Association was formed in December, which it is hoped will operate with benefit to the industry generally. The old system of tribute surface mining was abolished and this step should result in economy of labour.

In the Tavoy Wolfram field many of the Chinese coolies imported in 1915-16 have settled in the district. On the other hand several left, probably owing to the higher wages obtainable in the Federated Malay States. On the whole the labour supply was not equal to the demand. An experiment was made of importing ticket of leave labour. Most of these, however, were Burmans who, as a race, have no natural aptitude for mining. Imported labour from the Hazaribagh district in Bihar and Orissa continued to be used and to fill a useful place in the local scheme of work.

Section II.—Output of Mineral.

COAL.

There was a large increase in the output, which was 17,326,384 tons. This is an increase of 907,302 tons or 5·53 per cent. over the output of 1916, the average increase during the previous ten years being 730,641 tons. This is the first year in which the seventeenth million has been reached, and the increase represents an addition of nearly one million tons in two years. The opening stocks were 697,276 tons, and the closing stocks were 518,838 tons. The despatches amounted to 14,979,190 tons, and the colliery consumption to 1,835,510 tons (10·59 per cent. of the output). The amount of coal delivered to coking was 690,122 tons, from which 190,329 tons of hard coke and 225,120 tons of soft coke were made. Analyses of these figures will be found in Appendix I, table 2.

This increase was general throughout British India, and only in five of the seventeen coalfields was there failure to respond to it. Amongst these five, however, were the important Raniganj and Giridih coalfields, the other three being small fields. The main increase was in the Jharia coalfield, the output of which was 833,470 tons more than in 1916, and there were substantial increases in the coalfields of the Central Provinces, the Bokaro-Ramgarh field and the portion of the Raniganj coalfield lying to the west of the Barakar river, generally known as the Mugma area. If it had not been for the increase in the last named, the decrease in the Raniganj coalfield on the whole would have been even more marked than it was.

Of the total output, 16,562,712 tons, or 95·59 per cent. were raised in Bengal and Bihar and Orissa, the percentage of the previous five years being

95·89. It is difficult to draw any comparison between the conditions in these two coalfields in 1917, and those previously existing, as they were to such a large degree influenced, even dominated, by war requirements. All the better coals were requisitioned by Government for military purposes, direct and indirect, at fixed prices, and these coals naturally had the benefit of priority as regards transport. The result was that the demand for the non-requisitioned coals exceeded the available supply, and prices for such coals ranged far above the prices of the requisitioned coals, and were abnormally high, especially if their inferior quality is taken into consideration. It may be safely stated that by the end of September there was not a mine in the Jharia coalfield, capable of being worked, which was not being worked, many of them being minute concerns, raising inferior coal, which had been closed down for years. The same remarks apply to the Mugma area of the Raniganj field. Of the twenty-five largest concerns in both fields only five showed increases, and some showed considerable decreases, compared with 1916.

Towards the end of the year, a Coal Controller was appointed but his methods of regulating matters did not affect the period covered by this report.

In the other provinces, there were increases in Assam 5·00 per cent., the Central Provinces 29·06 per cent., the North-West Frontier Province (output negligible) 186·66 per cent., and the Punjab 5·10 per cent., and there was a decrease only in Baluchistan of 3·26 per cent. No coal was worked in Burma, from whence a negligible output was obtained in 1916.

The output per person employed during the year was (*a*) below ground 182 tons, and (*b*) above and below ground 113 tons. The figures for the five years preceding were (*a*) 178 and (*b*) 115. Taking each group of coalfields separately, these figures were as follows:—Bengal and Bihar (*a*) 186 and 181, (*b*) 115 and 116; Assam (*a*) 156 and 170, (*b*) 102 and 112; Baluchistan (*a*) 67 and 69, (*b*) 43 and 45; the Central Provinces (*a*) 135 and 120, (*b*) 88 and 82; and the Punjab and North-West-Frontier Province (*a*) 72 and 71, (*b*) 48 and 46.

The output in England in 1916 was 323 tons per person employed below ground and 251 tons per person employed above and below ground.

The whole question of the output of Indian coal is one of labour. Given a sufficient supply, the output from the existing workings could be increased 50 per cent.

During the year the effects of scarcity of machinery and plant and the inability to obtain replacements and additions for development from Europe began to be felt. Naturally this constituted a greater drawback to the owners of the larger and deeper mines.

MICA.

The output was practically stationary, being 35,896 cwts. as compared with 35,978 cwts. in 1916. This was the result of an increase of nearly 10,000 cwts. in the Bihar and Orissa field being balanced by an equal decrease in the Madras field.

In the first-named field conditions in the earlier part of the year were much the same as in 1916, with prices ruling firm and supplies considerably short of the demand, particularly for the better qualities, though stained mica was in considerable request. The unusually heavy rainfall, especially that of the 31st July, when 13 inches were recorded, resulted in most of the mines being flooded. This had the effect of still further increasing prices and temporarily reducing the output, which, however, recovered rapidly. In the latter half of the year, an increasing demand for the smaller sizes, chiefly from America for wireless telegraphy apparatus, resulted in an abnormal rise in their value. The work in this field is now being carried on with greater energy and improved methods. New roads are under construction, and in other ways the Local Government have assisted the mine owners to improve conditions generally.

In the Madras field, in spite of the encouraging features of the market, there was, as stated, a marked decrease in the output. A considerable number of new plots were prospected but very few turned out well.

MANGANESE.

There was a decrease in the output, which was 497,252 tons, as compared with 568,032 tons in 1916. This is a decrease of 12·49 per cent. The demand was strong, for munitions work, in all the allied countries. The shortage of tonnage continued, but the special arrangements made by Government for shipping, as in 1916, went far to relieve it. Prices advanced still further and the average rate per unit for the year was 37½ pence, which is a distinct advance on that for 1916, which was 29½ pence. The further rise in freights, insurance and other charges, incidental to shipping, resulted, however, in the exporter being in about the same position as he was in 1916.

WOLFRAM.

There was again a substantial increase in the output, which was 79,312 cwts. In 1916 59,094 cwts. were produced, making the increase 34·21 per cent. This increase was most noticeable in the first half of the year, which points to its being the result of lode mining rather than of hydraulic methods.

The tribute system, which is still the one mainly practised, is responsible for much waste of mineral. There are more hopeful signs for the future in that increasing attention is being paid to the deeper deposits, the exploration of which will necessitate modern methods of mining and of ore concentration. There are now four air compressor plants, operating machine drills, and two mines are equipped with milling machinery of fairly large capacity. In hydraulic mining much progress has been made, and water rights have been granted to enable several important schemes to be put into operation. The most important scheme comprises a reservoir with a capacity of five hundred and fifty million gallons to supply water under a head of approximately 1,800 feet to turbo generators which will develop power to electrify most of the machinery of a large mine and also to drive dredging machinery.

An Advisory Board has been formed and has met monthly since May for the discussion of all matters bearing upon the industry.

The installation of a magnetic separator at Tavoy has been of much assistance in the separation and cleaning of concentrates for shipment.

Great progress has been made in road construction throughout the field.

GEMS.

There was again a small decrease in the output, which was 198,200 carats. In 1916 209,724 carats were raised. This is a decrease of 5·49 per cent.

The demand for rubies in the Home markets was somewhat spasmodic and prices remained unchanged. In the Indian market there was a considerable business in most qualities. Rates for the finer stones did not improve but for the inferior qualities there was a substantial advance, amounting to about 25 per cent. For sapphires, 1917 was a very good year for the producer, there being a great demand from Paris. Really fine Mogok stones fetched very high prices. This naturally stimulated the supply and it is probable that more sapphires were found in 1917 than in any previous 12 months on record. Royalty payments showed an increase of 57 per cent.

GOLD.

The output again decreased slightly, being 22,991 ounces as compared with 23,235 ounces in 1916, a decrease of 1·05 per cent.

COPPER ORE.

The output increased with a leap and was 20,108 tons, compared with 2,671 tons in 1916, being an increase of nearly 653 per cent.

OTHER MINERALS.

There were increases in limestone, iron ore, magnesite, molybdenite, chromite, clay, tin, steatite and fuller's earth and decreases in slate, salt, bauxite galena, silver and graphite.

An output of samarskite is again reported from a mica mine in the Nellore District, Madras, and two minerals, bismuth and yellow ochre, appear in the appendix for the first time, the former mineral being won from a wolfram mine in Tavoy, Burma.

Section III.—Accidents.

During the year 1917, at mines regulated by the Indian Mines Act, 1901, there were 175 fatal accidents, being an increase of 35 as compared with the number in 1916, and an increase of 5, as compared with the average number of the last five years.

These accidents involved the loss of 201 lives, which is a decrease of 5 as compared with 1916.

There was no accident causing loss of life on a large scale. In four cases three lives, and in 18 cases two lives were lost.

Of these accidents I regard (*a*) 91 as being due to misadventure, (*b*) 46 to the fault of deceased, (*c*) 7 to the fault of fellow workmen, (*d*) 10 to the fault of subordinate officials, and (*e*) 21 to the fault of management.

The largest increase was in falls of roof and sides, which numbered 92. This is an increase of 22 over those of the previous year. Fifty-four of them occurred in the coalfields of Bengal and Bihar and Orissa, and in 19 cases they were due to the fault of the deceased. Going through fences to rob pillars caused 9 of such accidents. The method of testing the roof was found to be faulty in more than one case. Merely to strike the roof or overhanging side with a rod or pole is often a useless precaution, where there are "slips" and, consequently, large masses ready to fall. The roof should be felt by hand, and in high galleries by means of a second pole, while being sounded. In two cases, persons were killed by the fall of ironstone nodules or boulders in the roof. It is safest to remove such as soon as they are encountered.

The next largest increase was in haulage accidents, which were 19 in number as compared with 12 in 1916, and in sundries underground which were 15 as compared with 7. In four cases of haulage accidents, the couplings were found to be faulty. In many mines there are two or more different types of couplings, which have proved to be a source of danger. It is far safer to have one standard type. Whatever type is adopted, regular examination and periodical annealing is essential.

Shaft accidents showed a slight decrease, and surface accidents remained stationary. Shaft accidents in metalliferous mines tend to increase, and the condition of such shafts should be a matter for attention by the management.

There were three accidents causing deaths from electricity, a decrease of one.

The death-rate per thousand persons employed was ·95, while that of the preceding five years was 1·08. At coal mines only, these figures were 1·06, and 1·20, and at mines other than coal ·64 and ·70. At coals mines in England, during the ten years ending with and including 1916, the death-rate per thousand persons employed varied from 1·03 (lowest) to 1·69 (highest).

The death-rate per million tons raised at coal mines only was 9·41, while that of the preceding five years was 10·53. At coal mines in England, during the ten years ending with and including 1916, the death-rate per million tons raised varied from 4·31 (lowest) to 6·37 (highest).

Of the 201 persons killed, 183 were males and 18 were females.

The deaths occurring in each class of mines were as follows :—

One hundred and sixty-three in coal mines, 7 in gold mines, 1 each in iron, limestone, manganese, steatite and clay mines, 5 in mica mines, and 21 in wolfram mines.

One person lost his life by explosion of gas, 61 by falls of roof, 50 by falls of side, 16 in shafts, 3 by suffocation by gases, 9 by explosives, 4 by

falling into water, 20 by haulage, 15 by other accidents underground and 22 on the surface.

A list of these persons appears in Appendix II, table 1. In addition to this there were 30 other accidents causing the death of 30 persons. These also appear in Appendix II, table 1, but are listed separately, a reason being given in each case for their exclusion from the statistical tables.

In the Bengal and Bihar coal mines, where most of the statistical accidents occur, there were 118 deaths compared with 157 in 1916.

Each accident is briefly described in Appendix II, table 1, but the following are reported on at greater length. The numbers refer to the numbers in the appendix.

FALLS OF ROOF.

No. 7.—The Barakar Coal Company, Limited's Gourangdih coal mine.

In this accident, which is illustrated by plan A, the pillars of coal, shown cross hatched in black, had been goafed in the usual method of mining and, while the work persons were engaged on the pillars next to them, a collapse of the mine occurred, extending in a very short time over the whole of the area shown single hatched. The general body of workmen managed to escape, one person, however, being killed and one injured. Two other persons, who were imprisoned at the bottom of the air shaft marked A on the plan were rescued owing to the intrepid conduct of Mr. C. H. Whiffen, the Assistant Manager, and some workmen.

News of the disaster was brought to Mr. Whiffen and he was told that the two men were calling for help at the bottom of the air shaft. Accompanied by a Sirdar, named Bideshi Kol, he proceeded underground as far as the point B on the plan, which was the only road leading to the imprisoned men. This they found partly blocked with stone, and as the roof beyond was cracking badly and stone was falling, they decided to return to the surface for assistance, in case the road should be completely blocked, once they had passed through it, in which case their retreat would have been cut off. At the surface they organised a rescure party consisting of themselves, two miners and two timber men.

Realising that their retreat might still be cut off, Mr. Whiffen instructed other men to prepare a rope and tackle for use at the air shaft at A, to draw them all up, if necessary.

They went underground again and found the gallery at B, again blocked with stone, which had fallen in the interval. A road, measuring 4 feet high by 2 feet wide, was scraped through the fall, and the party traversed the passage into the open galleries beyond. They continued on their way, and finally reached the bottom of the air shaft and found the two men, who were pinned down by a large stone and unable to move. This was at the corner of one of the four shaft pillars, one of which had already collapsed, while the others were rapidly crushing. With the aid of a long lever, which Mr. Whiffen had brought with him, the stone was prised up and the men released. They were in an exhausted state and quite helpless.

As the tackle had not been erected at the air shaft, Mr. Whiffen decided to carry the men back the way the party had come. When they got to the gallery at B, they found it once more blocked with stone from a fresh fall and a new road had to be cleared, before the party could pass through. As soon as they had all passed through, the road closed again and, when they reached the surface, they found that the air shaft from the bottom of which they had rescued the men, had also collapsed, so that no tackle could have saved them.

The sudden collapse of the mine, over so large an area, is one more example of pillars being too small to sustain the altered roof strain, induced by goafing operations.

No. 18.—The New Suratand Coal Company, Limited's New Suratand coal mine.

This accident, which is illustrated by plan B, occurred in an area in No. 14 seam in which coal was being dropped by the method known as the Giridih method. The seam is 25 feet thick.

Up to the time of the occurrence, five pillars had been extracted in this way, and the sixth was being extracted when the fatality took place. These pillars formed a line of pillars adjoining a solid barrier of coal and were being got from "dip" to "rise."

The seam is fairly flat, the gradient being only 1 in 10. The first roof had fallen in the goaf, but the main roof had not come in.

The system of extraction was as follows:—A "chowkidar" was left against the goaf side in each instance, along the whole width of the pillar (40 feet to 50 feet, as the case might be, by 10 feet wide). A gallery, 6′×6′, was driven along the "chowkidar," through the pillar and on the floor. Above this, on the edge of the "chowkidar," two "chutnees," 5′×2′, were driven, one just above the 6′ gallery and the other next the roof. The remainder of the pillar was cut up into "stooks," about 6′×6′, by galleries driven on the level and on the dip course in the bottom of the seam, the number of "stooks" being determined by the size of the pillar.

In this particular instance there were seven "stooks" and a "chowidar," measuring 50′×10′. These "stooks" had been further reduced in area to approximately 5′×4′ and 4′×4′. It was intended that three dynamite shots should be fired in each "stook," so as to shatter them finally and cause the overhead coal to fall. On the day of the accident, everything had been prepared for so dropping the coal. Twenty-one shot holes, each charged with 2 or 3 cartridges of dynamite, were ready and three men, one of whom was killed by this accident, went in simultaneously to light the fuses. The overman was standing outside. Deceased appears to have been detailed to light the fuse in the two outside "stooks." Almost as soon as the men had gone inside, the overman heard a grinding in the roof, and shouted to the men, two of whom ran out into safety towards the rise. The coal broke away suddenly on the outside rise corner, and afterwards fell altogether, completely burying deceased.

There is no doubt that this system of dropping roof coal can only be carried out with safety where the roof over the coal is an exceptionally good one and where, therefore, sudden weight is not thrown by the roof on to the pillar of coal being got. Even at Giridih, where conditions are most favourable and where the staff have been specially trained for years, accidents occur from time to time. In the present instance the only factor of safety lay in the solid barrier of coal alongside the line of pillars being extracted. But for this support the system could not have been adopted at all.

No. 27.—The Hon'ble Maharaja Sir M. C. Nandi's South East Baraboni coal mine.

By this accident, which is illustrated by plan C, the manager of the colliery, Mr. George Jack, who was held in high esteem in the coal-fields, lost his life.

The last stage in the extraction of a pillar in a seam 14 feet thick was in operation at the time, and a "stook" of coal, about 3 feet square, had to be removed. Coal had been taken off the pillar in the usual way, advancing from the solid to the previously formed goaf, and props had been "set" systematically to the roof coal, which was about 2 feet 6 inches in thickness. Above it was shale, 5 feet 6 inches in thickness, and above that the main roof.

It appears that Mr. Jack entered the goaf in the early morning. He gave instructions to the workmen to further reduce the "stook," and to "set" more props, as they cut. He then went to the surface and, on returning to the goaf, about 10 o'clock, heard that the roof had been "weighting," and found the men

apprehensive of danger. He examined the place, and had two more props set, after which he asked the men to cut the "stook" out. They showed a disinclination, through fear of danger, to carry out his wishes, pointing to a very pronounced "slip," which traversed the roof near the "stook," as the reason for their apprehension. He tried to reassure them by indicating how well timbered the place was and at last took a pick himself and attacked the "stook." He worked for a considerable time, probably an hour, at the same time listening intently for any movement of the roof, while three or four men carried away the coal. Suddenly a "weight" came over the place and he shouted a warning to everybody to go away. Just as they got clear of the goaf, the shale roof collapsed and he and two workmen were caught by falling timber, which had been swayed out.

The two workmen were quickly released, having suffered only slight injuries, but deceased was pinned down by a prop, which was partially covered with coal and stone. He was unable to move. The Agent of the colliery was informed of the occurrence and immediately proceeded to the spot. Deceased was released and was taken to hospital, but unfortunately succumbed that night, after an operation.

An examination of the place after the accident disclosed the fact that, as far as could be seen, no props were broken by direct pressure. They appear to have been swayed out by lateral pressure, possibly originating at the "slip." Probably deceased did not forsee that this was a possibility. His eagerness to remove the "stook" apparently overruled his judgment. He knew that the "stook," if allowed to remain, might throw the weight forward over the standing pillars, thereby endangering work in the next goaf, and might also give rise to spontaneous combustion.

No. 49.—Ghusik and Muslia Collieries, Limited's Ghusik coal mine.

This was another case of improper working in the getting out of pillars. While four miners were engaged in extracting a pillar in a seam 11 feet 6 inches thick, a fall of roof coal and stone occurred, measuring 38′ × 16′ × 3′ to 5′ thick. Three men were killed on the spot.

The coal pillars were set out at centres 60 feet apart and the normal width of the galleries was 15 feet. The Inspector of Mines who enquired into the case considered that undercutting in the seam and pillar robbing were practised to excess. These practices naturally tend to make the extraction of pillars more dangerous. The width of the particular gallery, opposite which the pillar was being extracted, appears to have been 20 to 24 feet in width and up to a few days before the accident it was untimbered. It is said that afterwards props were set. Some props were admittedly set but the occurrence of the accident proved that they were insufficient for protection.

Since the accident the following instructions have been issued by the management to the officials. The adoption of them by managers may prevent similar accidents:—

(1) Before the extraction of any pillar, the gallery from which the pillar starts is to have at least two rows of props set in it. If the gallery is wide enough, further rows must be set, so that the distance between each prop does not exceed 3 feet in any direction. Thereafter, this distance (3 feet) is to be observed throughout the pillaring, as the greatest distance at which props are to be spaced. The distance can be made less, if considered necessary, but in no case must it be exceeded.

(2) At no time is the distance from the last row of props to the face to exceed 8 feet. The face for this purpose is the part furthest in, that is to say, if the lower part of the seam has been cut away and there is 5 feet of overhanging coal, the last row of props will be 3 feet from the edge of the overhanging coal.

(3) A row of props is to be set close to the back pillar to prevent any cutting of the back side of the next pillar.

(4) Before a pillar is drawn off, at least one row of props is to be set in the gallery above that pillar from which the next pillar is to be started.

(5) When a gallery has been standing wide for any time, special care should be taken in starting a pillar therefrom.

FALLS OF SIDE.

No. 82.—Bansdeopore Coal Company, Limited's Bansdeopore coal mine.

By this accident two men were killed and two injured.

Miners were engaged in the first operation connected with the extraction of two pillars of coal 24 feet high. The coal was soft and the pillars were traversed by slips. About six tons of coal fell suddenly from the side of one of the pillars. This was followed shortly afterwards by a heavier fall of 30 tons.

The first operation abovementioned, consisted of splitting the pillar by driving a gallery through it in the level direction near the floor. The commencement of these splits is dangerous work, as the miner has to undercut a pillar 24 feet high. Before commencing, in addition to vertical props set in the gallery, the face of the coal above the split should have been supported by horizontal struts wedged against the opposite pillar, or by inclined struts set against the coal. This was not done in this case, and the Inspector of Mines who enquired into the accident expressed the opinion that the place must have been in an extremely dangerous state before the accident. It is stated that some vertical props were set, but these would not have prevented the accident.

IN SHAFTS.

No. 104.—Katras-Jharia Coal Company, Limited's Sibpore coal mine.

In this case a man had crossed the bottom of the shaft to release an empty tub which was jammed in the cage. A piece of coal fell on his head and he died from the injuries received.

Crossing a shaft bottom in this manner is always dangerous and, in order not to expose persons to the temptation of so crossing, a short way round, at the shaft-bottom, properly protected, should be provided. In this case, in order to get round to the other side of the shaft, without crossing it, a distance of 150 feet had to be traversed. Since the accident a proper short way has been constructed, protected by masonry.

IRRUPTION OF WATER.

No. 120.—Shampore Coal Company, Limited's Sundarchak coal mine.

Up to now Indian Mining has been comparatively free from a type of accident very much to be dreaded and that is the irruption of a large quantity of water from a neighbouring abandoned mine. Such an accident occurred during the year under report. It is illustrated by plan D. Fortunately there were only seven persons underground, three of whom were cut off and drowned, or the loss of life might have been very much greater.

The seam worked is the Dishergarh seam, which is 15 feet thick. Above the coal is shaley sandstone, to a thickness of 4 feet 6 inches, and above that coarse grained sandstone to the surface. About two feet of coal is left in the roof of the galleries.

It will be seen from the plan that the underground workings concerned are divided into two sections, north and south, separated from each other by a barrier of coal, whose thickness is not known. The north section was abandoned before the rules made under the Indian Mines Act came into force and there is no plan or other record of the extent of the workings. The south section only was at work at the time of the accident.

There are other old workings in the vicinity, but levels, taken after the accident, prove that the north section was the only one concerned with the inundation.

For many years water has been known to be impounded in the north section, as far back as the quarry shown on the plan, which, before the accident, was full of water, and which the accident proves to have been connected with the underground workings in this section. The water had exerted a maximum pressure on the barrier, separating the two sections, of 81 lbs. to the square-inch. It was this water which broke through, or over, the barrier and flooded the south section.

Percolation of water through the barrier was hardly perceptible five days before the inundation, when a Junior Inspector of Mines made an inspection of the mine, except at the point A on the plan, where a small stream of water was issuing through a fissure near the roof.

The south section is provided with two shafts, one of which, No. 6 B, is the working shaft and the other, No. 6 S, a pumping shaft. At the time of the accident there were seven men underground. One of these was the onsetter at No. 6 B shaft, while one man was at No. 1 Pump, two men were at No. 2 Pump and three men were at No. 3 Pump, the water-line before irruption being a little way below these pumps, as shown approximately on the plan. The first intimation received of the irruption was a roaring noise accompanied by a rush of air, which extinguished the lights. The water began to rise rapidly and the two men at No. 2 Pump were guided by a delivery pipe to No. 6 B shaft-level and then by the rails to the shaft bottom, where they found 18 inches of water on the flatsheets.

Just before their arrival the onsetter had made his way to the man at No. 1 Pump, to get his lamp re-lighted. In answer to the shouts of the men at the shaft bottom, they both returned there and found that the water had risen waist high on the flatsheets. They got on the cage and were raised to the surface. They then sent the cage down empty, in case there were any more survivors. The remaining three men, who were at No. 3 shaft, failed, however, to reach the shaft and as no gallery in the mine had advanced far enough to the rise, to enable an air-lock to be formed, in which survivors could have been imprisoned, they were undoubtedly drowned by the rising water.

All the pumps underground were lost, but other pumps were obtained and pumping operations were started with a view to dewatering the mine. Subsequently, however, the owners sold the mine to another company, who have not carried out any dewatering or mining operations. No inspection, therefore, of the mine has been possible.

The cause of the irruption and the culpability, if any, of any one can only be decided when the workings are accessible.

The manager and two previous managers were examined as to the work they had done during their tenure of office and they all denied having reduced the barrier between the north and south sections. The Junior Inspector of Mines was informed during the course of his inspection that one of the previous managers had reduced the barrier, and a sirdar stated that coal was cut from the barrier, between the points B and C on the plan, to a depth of 10 feet under that manager's instructions. The latter, however, has declared that the only work done in this portion of the mine by him was the extraction of pillars marked 1, 2, 3, 4 and 5 on the plan.

The pillars had shown signs of crush everywhere and much timber had been erected in an effort to arrest it. The crush may have become acute on the night of the irruption and developed into a collapse which extended over the barrier.

The only other point of note is that two subsidences were found to have occurred after the irruption in the silt on the dip side of the quarry, from where the water in the quarry travelled into the underground north workings. After the accident the quarry was found to contain no water. Whether these subsidences released water, which increased the pressure on the barrier beyond its strength, or whether they were the result of the sudden reduction of supporting pressure on the underside by the rapid recession of the water, it is not possible to state,

HAULAGE.

No. 128.—The Union Coal Company, Limited's Angarpatra coal mine.

This accident was caused by a runaway tub, which broke away from an empty set as it was being lowered in an incline. A miner was run over and killed. It is probable that the coupling, which consisted of three links attached to one end of a tub and a hook on another, came in contact with a level pulley on the haulage road, which caused it to lift. If long couplings are necessary, and they often are when bad curves have to be negotiated on haulage roads, they should be properly designed, in order that when tubs are buffer to buffer and the coupling hangs and is likely to strike the ground, there is no chance of the link lifting and coming away from the hook. For this reason D links and pins are to be preferred to hook couplings.

The accident proves the advisability of having one standard type of couplings of good design. At this mine three different varieties of couplings were in use. The effect of having more than one type of coupling is that two different couplings may have to be connected, and it is not easy, in such cases, to connect them safely.

SUNDRIES UNDERGROUND.

No. 144.—The Bengal Coal Company, Limited's Sitalpur coal mine.

A line of steam pipes underground was supported by chains at intervals, except at one place where there was a bend, the range crossing the gallery at this point and being supported by a prop. The prop was found to have fallen and a joint in the pipe to be leaking. On replacing the prop, a blow given, to wedge it tight, caused the steam-pipe to burst and one man was killed by being scalded. The accident emphasizes a faulty system of support for steam-pipes under-ground, which is very prevalent in the coalfields. Ordinary props are not a suitable form of support. They are incapable of resisting lateral pressure and are apt to fall over, throwing a sudden strain on the joints. The suspensory system described above is better, but it is necessary to see that the range is kept level. A better plan is to support the line on rollers set on masonry pillars. After this accident the prop was replaced by such a pillar.

Non-Fatal Accidents.

EXPLOSION OF GAS.

The Harriladih Coal Company, Limited's Akhalpur coal mine.

The circumstances attending this explosion, which was fortunately not accompanied by loss of life or serious bodily injury, were as follows. They are illustrated by plan E.

The seam worked is the Sibpur seam, which is 14 feet thick. Goafing operations were in progress, as shown on the plan. Roof coal, 8 inches thick, was left unworked in the goaf and there may have been a few "stooks" of coal that had not been recovered. It was a comparatively small goaf, being only 330 feet by 100 feet.

The mine was worked with naked lights, no trace of firedamp having ever been detected.

Extraction had been commenced about fourteen months previously and "fire stink" was first noticed at the edge of the goaf about a week before the accident. Isolation by means of stoppings was undertaken at once, and those numbered 1 to 8 on the plan were completed on the day before the explosion, being built in their numerical order. At the time of the explosion the only persons in the district were those engaged in building fire stopping No. 9 and in putting up brattices and air stoppings. These were in charge of an assistant manager. In addition to No. 9 stopping which had been built to a height of 3 feet, there were three more to be built to complete the scheme of isolation. Three old stoppings, which were suitably placed, had been allowed to remain,

and had been plastered with mud in an effort to make them airtight. All the new stoppings were made of brick or stone, set in mud and plastered with mud, but they were not absolutely airtight.

A loud report was heard, coming from the direction of the goaf, and all lights in the district were extinguished by the accompanying rush of air, with the exception of one, which was sheltered from the direct blast.

The assistant manager, who was standing at the point A, saw a flash of light at the point B, which he took to be flame, and he concluded that an explosion had occurred. He was knocked over by the air blast, as also were two or three men who were with him. No one else in the mine saw the flames, but a mason working at No. 9 stopping stated that the air which came from the goaf was very hot. A good deal of smoke followed the explosion. No coking was discernible anywhere, which was due to the mine being a wet one.

Stoppings Nos. 2 to 8 were partially demolished by the force of the explosion all in an outward direction.

This is another case of gas being formed, as a result of a goaf fire, and exploding at the fire, in a mine in which, under ordinary working conditions, no gas had ever been seen. The order in which the stoppings were built tended to diminish the chances of an explosion, because the return side of the fire was the first to be built off. Unfortunately, however, the stoppings were not tight and fresh air was continually being supplied to the seat of the fire. It is perhaps too much to assert that, had the stoppings been absolutely airtight, the explosion would not have occurred, but it is probable that, had the escape of the products of combustion been entirely cut off, it would not have occurred, or, if it had occurred, its force would have been greatly reduced.

IN SHAFTS.

The Sendra Coal Company, Limited's Sendra coal mine.

In this case, while a loaded bucket was being raised from the bottom of a sinking pit, 506 feet deep, the bucket caught in the bottom end of the signal wire. This caused the bucket to swing and it collided with a column of pipes, with the result that some stone fell from the bucket to the pit bottom, and one man was injured.

It transpired that the pulley wheel was not over the middle of the shaft, owing to the fact that the headframe was the permanent headframe, designed to carry two pulley wheels, to be used afterwards for winding in cages. The consequence was that there was only 1 foot 6 inches of clearance between the rim of the bucket and the buntons in the shaft. It is surprising that 506 feet were sunk without an accident. If a permanent headframe is used, temporary arrangements should be made for the pulley wheel, to be used in sinking, to be in the middle of the shaft, or at any rate in such a position as to obtain a greater clearance than 1 foot 6 inches.

BY SURFACE MACHINERY.

Tata Iron and Steel Company, Limited's Malkera-Choitodih coal mine.

At the close of 1916 an overwinding accident occurred owing to the partial failure of an overwinding and overspeed gear, whereby one man, who was ascending the shaft in a bucket, was carried up into the headframe and injured. Appliances of this kind have come into general use in England only of late years but their use is now compulsory at shafts over 300 feet deep. Only a few have yet been installed in India. The makers of this particular device claim that it cannot fail to act automatically, if in proper adjustment. After considerable inquiry and correspondence with the makers, the conclusion has been arrived at that the appliance was not in proper adjustment at the time of the accident and that possibly the brakes did not grip sufficiently. Complicated devices of this kind cannot be relied on to act constantly, unless they are kept in perfect adjustment by an engineer, possessed of the necessary skill. The winding engineman is apt to be less careful when his engine is fitted with such an appliance and the fact of the latter not being in perfect order constitutes therefore a danger and not a safeguard. A weekly trial of such a device should be made and recorded.

Section IV.—Prosecution and additions to the Act.

PROSECUTIONS.

Judgment was given in the following prosecutions during the year. Unless otherwise stated, "rule" means a rule under Notification No. 864-68-20, dated the 10th March 1904, being rules for the working of coal mines.

The owners (three) of the Rajput Coal Company's, Pirorgoria coal mine, were prosecuted under Rule 12, read with section 22(2)(*b*), for not furnishing the plan of the abandoned workings of the colliery. Two of the owners were fined Rs. 25 each. The case against the third was withdrawn.

The owners (three) of the North Jharia Coal Syndicate's, Dhansar coal mine, were prosecuted under Rule 12, read with section 22(2) (*b*) for not furnishing the plan of the abandoned workings of the colliery. They were fined Rs. 51 each.

The owner and manager of the Central Tentulia Coal Company's, Central Tentulia coal mine, were prosecuted under section 15(2), read with section 22(3) (*a*), for failing to comply with an order issued prohibiting the employment of women and children in the mine. The owner was fined Rs. 50: the case against the manager was withdrawn.

The owner and manager of Babu Satya Taran Chowdhury's, Pandedih coal mine, were prosecuted under Rules 3, 7 and 19, read with section 22(3) (*e*), for not keeping the roof of the mine secured, for not having several disused galleries fenced and for not having three inclines adequately fenced. They were each fined Rs. 50: in default, one month's simple imprisonment.

The manager of Yetur Venkatanarapa Reddy's, Tatiparti mica mine, Nellore, was prosecuted under Rule 17 of Notification No. 6436-152, dated the 2nd September 1911, read with section 22(1) (*e*), for failing to secure the sides of the mine, and for breach of Rule 8 of Notification No. 11793—103, dated 30th December 1908, read with section 22(2) (*b*), for failing to report an accident which occurred at his mine. He was fined Rs. 25 on each count: in default one week's simple imprisonment.

The owner of Babu Ruplal Agarwalla's, East Chandrabad coal mine, was prosecuted under Rule 1 (*c*), read with section 22(3) (*e*), for not providing a second outlet of the prescribed dimensions and under section 13(1) of the Indian Mines Act, 1901, read with Rules 46 and 47 of Government Notification No. 2968-82, dated the 21st April 1906, and with section 22(3) (*e*), for not having a properly qualified manager. He was fined Rs. 50: in default one month's simple imprisonment.

The agent and the manager of Messrs. Ramji Das, Bichar Das's, Gararia coal mine, were prosecuted under Rules 3 and 7, read with section 22(3) (*e*), for not keeping secure the roof of the workings, for not fencing disused galleries, and under Rule 2 of Notification No. 11793-103, dated the 30th December 1908, read with section 22(3) (*e*), for not notifying the discontinuance of the working of a seam. They were fined Rs. 100 and Rs. 50 respectively: in default two months' simple imprisonment for the former and one month's simple imprisonment for the latter.

The owners and manager of the Kujama Colliery Company's, Kujama coal mine were prosecuted under Rule 2 of Notification No. 11793-103, dated the 30th December 1908, and Rules 2 (*b*) and 19, read with section 22(3) (*e*), for not reporting the discontinuance of the mine, for not having an adequate brake on the drum shaft of the winding engine and for not fencing a shaft. They were fined Rs. 100 each: in default two months' simple imprisonment.

The owner of Babu Gunpat Ram Marwari's, Kessebganj coal mine, was prosecuted under Rules 1, 7 and 14, read with section 22(3) (*e*), for not providing a second outlet, for not having disused galleries fenced and for not having an adequate amount of ventilation. He was fined Rs. 45: in default one month's simple imprisonment.

The owner of the Sinidih Coal Concern's, Sinidih coal mine, was prosecuted under Rule 46 of Government Notification No. 2968-82, dated the 21st April 1906, read with section 13(1), for not appointing a properly qualified manager. He was fined Rs. 50: in default one month's simple imprisonment.

The owner of Babu Bholanath Chatterjee's, Haripur coal mine, was prosecuted under section 15(2), read with section 22(3) (*a*), and Rules 2 (*b*) and 2 (*e*), read with section 22(3) (*e*), for failing to comply with an order passed by an Inspector of Mines under section 22(3) (*e*), prohibiting the employment of women and children underground, for not providing an adequate brake for a winding engine and for not providing guides in a shaft. He was fined Rs. 100: in default two months' simple imprisonment.

The owners (two) of Messrs. Bhattarjee and Ghosh's, Sonardih coal mine, were prosecuted under Rule 47 of Government Notification No. 2268-82, dated the 21st April 1906, and under section 13(1), read with section 22(3) (*e*), for not having appointed a properly qualified manager. One owner was fined Rs. 100: in default two months' simple imprisonment. The other owner was acquitted.

The owners (two) of Srimati Sindhu Bala and Babu Tara Pado Chatterjee's, Chotodhemo coal mine, were prosecuted under Rule 12, read with section 22(2) (*b*), for not furnishing a plan of a discontinued mine. They were each fined Rs. 10.

The manager of Babu P. K. Chatterjee's, Khona Konda coal mine, was prosecuted under Rule 19, read with section 22(3) (*e*), for not fencing a disused shaft. He was fined Rs. 10.

The owners (two) of Jairam Shivaji and Company's, Central Jharia coal mine, were prosecuted under Rule 46 of Notification No. 2968-82, dated the 1st April 1906, and Rule 7, read with section 22(3) (*e*), and under Special Rule No. 22 made under section 21, for not having a properly qualified manager, for not having disused galleries fenced off and for not appointing in writing the competent persons necessary for carrying out the requirements of the Special Rules, and not supplying them with copies of the Special Rules. They were each fined Rs. 50: in default one month's simple imprisonment.

The manager of the Bamanband Coal Company, Limited's Bamanband coal mine, was prosecuted under Rule 19, read with section 22(3) (*e*), for failing to keep a disused shaft fenced. He was fined Rs. 50.

The owner of Babu G. C. Dey's Kandra coal mine, was prosecuted under Rule 19, read with section 22(3) (*e*), for not fencing the edges of a disused water-logged quarry. He was fined Rs. 100: in default one month's simple imprisonment.

The manager of the Lodna Colliery Company, Limited's Lodna coal mine, was prosecuted under Rule 20, read with section 22(1) (*e*), for not fencing a pulley-wheel on a surface endless haulage road. He was fined Rs. 75.

The manager of the Marine Coal Company, Limited's East Kurkend coal mine, was prosecuted under Rule 7, read with sections 22(1) (*e*) and 22(3) (*e*), for not having a disused and dangerous portion of a quarry fenced off. He was fined Rs. 150: in default three days' simple imprisonment.

The owner of the New Fatka Coal Company's, New Fatka coal mine, was prosecuted under Rule 12, read with section 22(2) (*b*), for not furnishing a plan of a discontinued mine. He was fined Rs. 20: in default one month's simple imprisonment.

The owner of Babu B. K. Lahiri's, Nayadanga coal mine, was prosecuted under Rule 1 of Notification No. 11793-103, dated the 30th December 1908, read with section 22(2) (*b*), for not submitting an annual return within the prescribed date. He was fined Rs. 50: in default one month's simple imprisonment.

Information was received regarding the following judgments in prosecutions initiated by managers against employees for breaches of the Special Rules, made under section 21 of the Act.

A sirdar, at Messrs. Kanga and Company's, Alkusa coal mine, was prosecuted under Rule 4, read with section 22(3) (*e*), for absenting himself from duty without making over charge to a competent person or obtaining the permission of a superior officer. He was fined Rs. 10: in default one week's rigorous imprisonment.

An overman, at the Moti Ram Coal Company's, Kurkend coal mine, was prosecuted under Rules 40 and 41, read with section 22 (1) (*e*), for not using due

precautions in carrying out dangerous work and for not seeing that the sides of the mine were kept secure. He was fined Rs. 50.

A sirdar, at the Bengal Coal Company, Limited's Sodepur coal mine, was prosecuted under Rule 4, read with section 22 (3) (*e*), for absenting himself from duty without permission. He was fined Rs. 15: in default ten days' simple imprisonment.

A miner, at the Bansjora Coal Company, Limited's Bansjora coal mine, was prosecuted under Rules 2, 5 and 16, read with section 22 (3) (*e*), for doing an act likely to endanger his safety, or that of another person. He was fined Rs. 15 : in default three weeks' simple imprisonment.

A locomotive fireman, at the Bansjora Coal Company, Limited's Bansjora coal mine, was prosecuted under Rule 4, read with section 22 (3) (*e*), for absenting himself from duty without permission. He was fined Rs. 20: in default four weeks' simple imprisonment.

A locomotive fireman, at the Bansjora Coal Company, Limited's Bansjora coal mine, was prosecuted under Rules 4 and 5, read with section 22 (3)(*e*), for absenting himself from duty without permission and for doing an act likely to endanger the safety of other persons. He was fined Rs. 50: in default six weeks' rigorous imprisonment.

The owners of the Central Tentulia coal mine were prosecuted at the instance of the Police, under section 283 of the Indian Penal Code, for obstructing a road, known as the old Ranchi Road, by making it unsafe, owing to mining operations and for placing fences across it. The Court gave judgment to the effect that there were two points to consider: (1) were the accused responsible for causing the obstruction, and (2) was the road in question a public highway: that the placing of a fence across a road which was dangerous was not in itself a culpable offence: that there were other underground workings in the vicinity, as well as those of the accused, and that there was not sufficient evidence to prove that the damage to the road was caused by the underground workings of the accused: that this being so, there was no need to consider whether the road in question was or was not a public highway. The case was therefore dismissed.

An objection under section 15 (4) was made by the owners of Messrs. Agabeg Brothers' Jogta coal mine, to the Mining Board of Bihar and Orissa, to a requisition made by the Inspector of Mines in India, No. 1 Circle, under section 15 (1). The matter was referred under section 15 (5) to a Committee, formed under section 10, who upheld the Inspector. A further objection was then submitted by the owners, under section 10 (6), to the Local Government, who again upheld the Committee and the Inspector. This is the first occasion, since the passing of the Act in 1901, upon which an objection has been made to the requisition of an Inspector under section 15 (1) or (2), and the first occasion, therefore, upon which a Committee has been formed under section 10.

Two permits, granted to managers of small mines, were cancelled during the year, on account of mismanagement, disclosed by inspection.

ADDITIONS TO THE ACT.

During the year Special Rules under section 21 of the Act were established at 15 coal mines, making a total of 468, and at 2 manganese mines, making a total of 37.

Section V.—General Remarks.

HEALTH AND SANITATION.

The Asansol Board of Health held 13 meetings. There was no change in the personnel of the unofficial members. The Compulsory Vaccination Act

(Bengal Act V of 1880) and the Bengal Vaccination Amendment Act (Bengal Act II of 1911), came into force on the 15th January and 27th November 1917, respectively. Under these regulations the Board appointed twelve Registrars of vital statistics and these Registrars were also appointed as the Board Vaccinators. Vaccination is now compulsory and free throughout the Asansol Mining Settlement.

During the year the Board issued plans of standard well parapets and bathing ghats and these are now in use in all the collieries of the settlement. Seventy-five burning ghats have also been established and are now in use.

Regulations for the prevention and control of cholera in the settlement were brought into force during the year, and measures have been adopted to prevent and suppress epidemic diseases. The Board's Sanitary Inspectors, assisted by its Vaccinators, deliver lectures on sanitation and hygiene in the collieries and villages of the settlement three times a week, leaflets in the vernacular being distributed at the lectures, giving suitable directions how to avoid disease.

There were 226 cases of cholera and 138 deaths, the figures for small-pox being 320 and 42, as compared with 671 cases of cholera and 241 deaths and 564 cases of small-pox and 90 deaths in 1916.

The Jharia Board of Health held 16 ordinary and 4 special meetings. The Board was reconstituted during the year. The same four official members were nominated by the Local Government, the elected members being Messrs. N. N. Mukherji, A. J. Smith, F. J. Simpson and G. C. Webster. A draft for a new Mining Settlement Act was considered and submitted to the Local Government. The provisions of the Epidemic Diseases Act were extended to the whole of the Mining Settlement and the Chief Sanitary Officer was appointed as the authority under the regulations. Under such authority several new regulations were brought into force. The Board continued to publish bulletins giving information for the prevention of disease.

There were 698 cases of cholera and 344 deaths. The figures for small-pox were 148 and 4, as compared with the preceding years' figures, which were, for cholera, 898 cases and 397 deaths and, for small-pox, 292 cases and 10 deaths.

Outside the coalfields of Bengal and Bihar and Orissa 46 deaths from cholera were reported from the Bengal Iron and Steel Company, Limited's iron ore mines in the Singhbhum District, and 19 deaths from the manganese mines in the Bhandara District of the Central Provinces. Thirty-one deaths from plague occurred also at a manganese mine in the Chhindwara District of the Central Provinces.

The rainfall in the Jharia coalfield was 72·09 inches, in the Giridih coalfield it was 69·16 inches, in the Raniganj coalfield it was 71·9 inches and at the New Jharia Water Works it was 72·87 inches. These figures for 1916 were 57·79, 77·50, 54·11 and 72·87 inches, respectively.

MINING EDUCATION.

The Professor of Mining at Sibpur College has reported that at the commencement of the session 1916-17 there were six students in the Senior, and fourteen in the Junior Mining Course. At the annual examination ten students qualified for promotion to the Senior course, while at the Diploma examination five students were awarded diplomas. The new session commenced with ten students in the Senior, and twenty in the Junior class. Of these there are two special scholars in the Senior class and two in the Junior.

The annual mining camp was pitched at Aldih. Twenty-nine regular students were present, and nine special survey students, who were attending a special course of mine surveying and were from the colliery districts, making a total of thirty-eight, which constituted a record attendance. Surveys above and below ground were carried out and visits of inspection paid to various mines. The senior mining students later accompanied the University Engineering students in their geological field-work.

The Mining Education Advisory Board held four meetings during the year. Mr. B. White's place, as Chairman of the Indian Mining Association, was taken by Mr. L. Edwards.

The lectures in the coalfields continued to be given. The syllabus was revised. The average attendance was 23·3, which is nearly as good as in the previous year.

The sessional examination was held in May, the examiners being Messrs. G. C. Leach, Inspector of Mines, and E. H. Robertson, Professor of Mining at Sibpur College. Thirty-three candidates sat for examination and 26 passed. Mr. W. J. Connolly obtained the highest marks. The Examiners reported that there was a distinct improvement over previous years in the answer papers.

The Bengali and Hindi lectures were also delivered.

BOARD OF EXAMINERS FOR COAL MINE MANAGER'S CERTIFICATES.

The personnel of the Board consisted of the Chief Inspector of Mines in India (*ex-officio*) President, and Messrs. T. H. Ward and F. Owen, *vice* Mr. S. Heslop resigned. The Board placed on record their high appreciation of the valuable services rendered by Mr. Heslop, as a member, for a prolonged period.

Five meetings were held during the year. One first class Indian Certificate of Competency was granted in lieu of an English Certificate.

One first class and one second class Certificates of Service were granted during the year.

At the examination for Colliery Managers' Certificates of Competency held at Dhanbad on the 21st, 22nd and 23rd February 1917, forty-four candidates sat for first class and sixty-three for second class certificates. Certificates of Competency were granted to nine first class and eleven second class candidates. The Examiners were Messrs. W. S. Elphinstone, J. Mackie and R. R. Simpson, Inspector of Mines, No. 1 Circle (Official Examiner and Secretary). Mr. G. C. Leach, Inspector of Mines, No. 2 Circle, was Assistant Secretary.

MINING BOARDS IN BENGAL, BIHAR AND ORISSA AND THE CENTRAL PROVINCES.

The Bengal Mining Board held two meetings during the year, when the following subjects were considered :—

(1) Draft rules under section 20 of the Indian Mines Act, 1901, for providing adequate acquaintance on the part of mine officials with the number of persons working in mine at any given time.

(2) Amendment of section 9 of the Indian Mines Act, 1901.

(3) Proposed addition of a sub-section to section 20 (2) of the Indian Mines Act, 1901, to regulate the employment of all kinds of labour.

The non-official members were Messrs. W. Graham and Glen George.

The Bihar and Orissa Mining Board held one meeting during the year when the following subject was considered :—

(1) Draft rule under section 20 of the Indian Mines Act, 1901, for providing adequate acquaintance on the part of mine officials with the number of persons working in mine at any given time.

The non-official members were Messrs. T. H. Ward and R. G. M. Bathgate.

The Central Provinces Mining Board was constituted in May 1917. The Notification relating to this Board appears in Appendix IV, Statement No. 6. No meetings were held by the Board during the year.

MINING AND GEOLOGICAL INSTITUTE OF INDIA.

The total membership at the end of the year, including subscribers, was 257. In addition to the Annual Meeting, four ordinary meetings were held during the year, in which papers were read and discussed and visits paid to two mines. The field-work for the preparation of the Geological map of the Jharia coalfield will shortly be finished and the preparation of the map will then be taken in hand. The Government prize for the best paper during the year was awarded to Mr. C. A. John Hendry for his paper on "Some primary

considerations in hydraulic stowing in mines, with a note particularly relating to the coalfields of Bihar." The Institute medals were awarded as follows :—

(*a*) the gold medal to Mr. C. A. John Hendry, for his abovementioned paper ;

(*b*) the silver medal to Dr. L. L. Fermor, for his paper on "The burning of coal seams at the outcrop " ; and

(*c*) the bronze medal to Mr. J. H. Evans, for his paper on "Housing of labour and sanitation at mines in India."

The office of the Institute has been removed to the Sibpur Civil Engineering College, Sibpur Botanic Garden, Post Office (Howrah District).

THE ASSOCIATION OF COLLIERY MANAGERS IN INDIA.

The Membership of Association increased during 1917 from 184 to 190.

The Council has been engaged with questions relating to the improvement of the housing of colliery labour, the supply of explosives for coal getting, and other important questions relating to the management of collieries. Two visits were paid by the Association to mines and works.

LAND ACQUISITION (MINES) ACT, 1885.

The number of original cases disposed of altogether at the end of 1917, stood at 308, sixteen of which were cases disposed of during the year.

OFFICIAL DUTIES, 1917.

Mr. G. F. Adams was Chief Inspector of Mines in India.

Mr. R. R. Simpson was Inspector of Mines, No. 1 Circle. From the 1st January to 23rd February, he had charge of No. 2 Circle, in addition to his own duties. He was granted privilege leave from the 10th July to the 9th August.

Mr. G. C. Leach returned from leave and resumed charge of No. 2 Circle on the 24th February. He resigned the service on the afternoon of the 31st December, having been an Inspector of Mines for over nine years. His work was always characterised by marked zeal, unremitting labour, and a high sense of duty.

Mr. J. Coggin Brown, Assistant Superintendent, Geological Survey, India, continued to be an Inspector of Mines in Burma.

Messrs. J. J. Turnbull and H. Lancaster were Junior Inspectors of Mines.

From the commencement of the year the work of the Department was added to considerably by the fact that applications for priority for the importation of colliery plant and machinery from the United Kingdom were referred to the Chief Inspector of Mines by Local Governments. In nearly every case this entailed a visit to the mine. Towards the end of the year a Committee, entitled the Mines Equipment Priority Committee, was appointed to examine applications from mines throughout India, with the exception of Madras, dealing direct with the Indian Munitions Board. The Committee consists of Messrs. G. F. Adams (President), W. Allen, the Hon'ble Mr. Sarat Chandra Sen and T. H. Ward. The formation of this Committee did not, however, release the Department from the work of making the inquiries at the mines. Three hundred and thirty-three cases were so inquired into during the year.

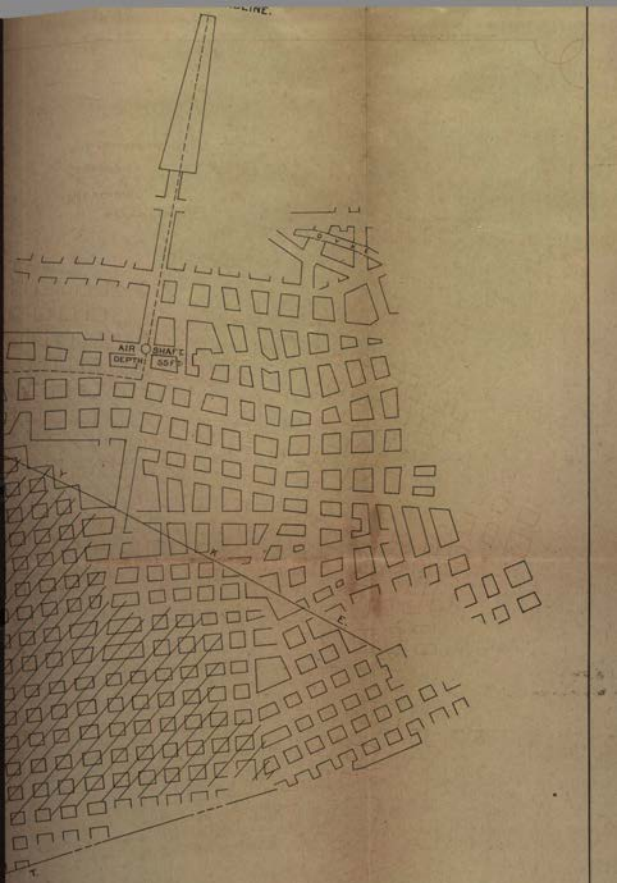
I have the honour to be,

SIR,

Your most obedient Servant,

G. F. ADAMS,

Chief Inspector of Mines in India.



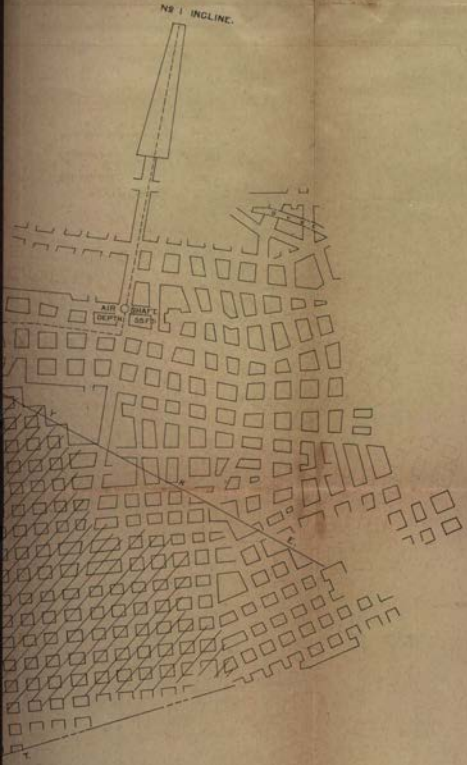
REFERENCES.

Pillars Goafed

Collapsed Area

Route taken by Rescuers

PLAN A.



REFERENCES.

Pillars Goafed

Collapsed Area

Route taken by Rescuers

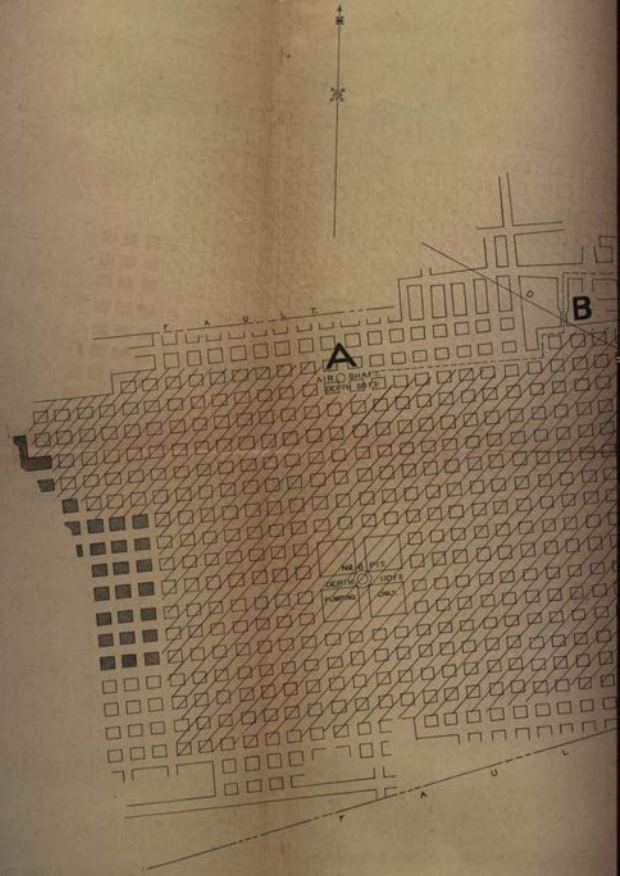
PLAN ILLUSTRATING REPORT ON

AN ACCIDENT BY FALL OF ROOF

AT

THE BARAKAR COAL CO., LTD'S. GOURANGDIH MINE.

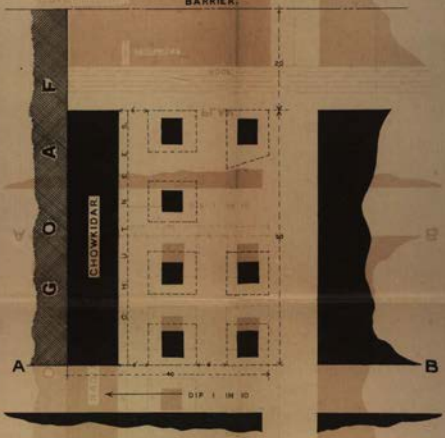
SCALE 1 INCH=50 FEET.



PLAN AND SECTION ILLUSTRATING REPORT ON FATAL ACCIDENT BY FALL OF ROOF COAL AT THE NEW SURATAND COAL Co. Ltd's NEW SURATAND COAL MINE.

SCALE 1 INCH=10 FEET.

SKETCH PLAN.
(NOT TO SCALE)



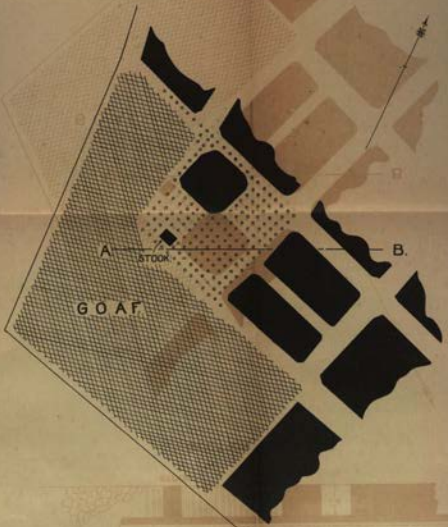
PLAN.

SECTION ON A.B.

PLAN ILLUSTRATING REPORT ON
AN ACCIDENT BY FALL OF ROOF
AT
SIR M. N. NANDI'S SOUTH EAST BARABONI COAL MINE.

SCALE 1 INCH = 20 FEET

SECTION ON A. B.



PLAN.

LITHO BY THACKER, SPINK & CO., CALCUTTA.

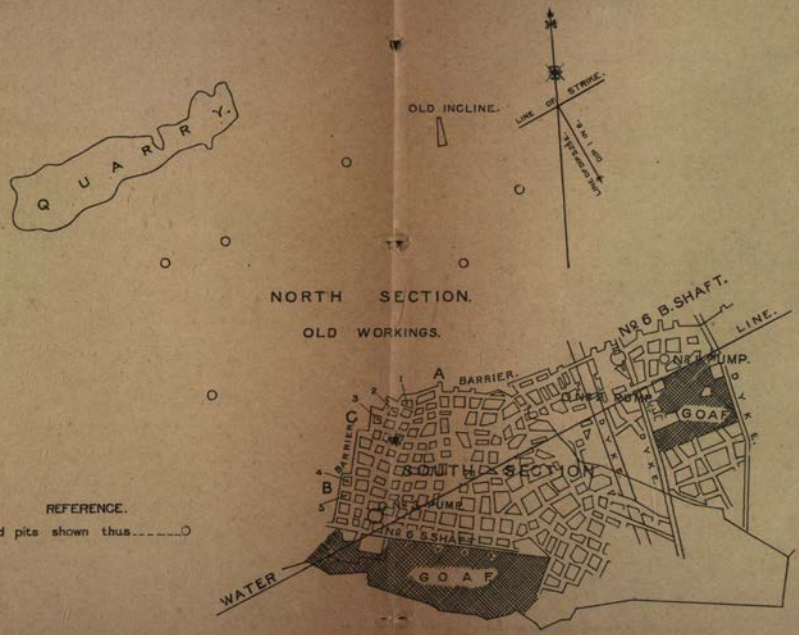
PLAN ILLUSTRATING REPORT ON

AN ACCIDENT BY IRRUPTION OF WATER

AT

THE SHAMPUR COAL CO., LTD'S SUNDERCHACK MINE.

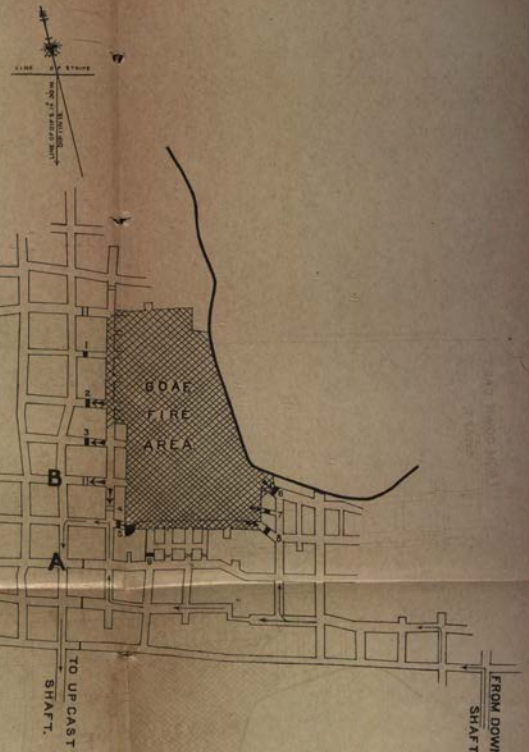
SCALE 1 INCH = 200 FEET.



LITHO BY THACKER SPINK & CO., CALCUTTA.

PLAN ILLUSTRATING REPORT ON
AN EXPLOSION OF GAS
AT
THE HARILADIH COAL CO., LTD.'S AKHALPUR MINE.

SCALE 1 INCH = 100 FEET



LITHO BY THACKER SPINK & CO. CALCUTTA.

APPENDIX I.

STATISTICS OF MINES AND MINERALS.

Table No. 1.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1917.

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							A.—COAL.									
							Tons									
Assam	Lakhimpur	6	4	2	...	...	291,484	1,601	208	...	1,809	498	214	58	770	2,579
	Naga Hills	1	...	1	...	...	8,906	98	2	...	100	204	26	4	234	334
	Sibsagar	1	...	1	...	...	915	15	3	...	18	9	1	...	10	28
	Total	8	4	4	...	...	301,305	1,714	213	...	1,927	711	241	62	1,014	2,941
Baluchistan	Kalat	9	..	9	1	1	6,469	105	...	...	105	20	...	...	20	125
	Loralai	1	...	1	1	1	104	10	...	...	10	8	...	...	8	18
	Quetta-Pishin	11	...	11	9	9	4,695	66	...	...	66	13	...	...	13	79
	Sibi-Khost	7	2	5	4	9	29,517	426	...	...	426	281	3	23	307	733
	Total	28	2	26	15	20	40,785	607	...	...	607	322	3	23	348	955
Bengal	Bankura, Raniganj	3	...	3	1	1	5,214	30	27	...	57	25	18	...	43	100
	Birbhum „	1	...	1	1	1	2,554	12	8	...	20	10	2	...	12	32
	Burdwan „	186	153	33	167	234	4,623,803	15,189	8,757	117	24,063	8,994	5,075	321	14,390	38,453
	Total	190	153	37	169	236	4,631,571	15,231	8,792	117	24,140	9,029	5,095	321	14,445	38,585

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1917—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							A.—COAL—*contd.*									
							Tons.									
Bihar and Orissa	Hazaribagh—Bokaro-Ramgarh	17	1	16	3	4	359,605	924	1,177	22	2,123	988	1,027	32	2,047	4,170
	Hazaribagh—Giridih	9	4	5	3	3	824,007	4,941	2,027	1	6,969	2,153	792	2	2,947	9,916
	Hazaribagh—Jharia	5	4	1	3	8	108,704	331	216	20	567	215	142	24	381	948
	Manbhum—Jharia	315	158	157	228	484	9,675,084	26,763	22,396	375	49,534	19,380	8,967	1,571	29,918	79,452
	Manbhum—Raniganj	89	12	77	72	97	739,334	2,704	1,749	12	4,465	3,012	1,410	123	4,545	9,010
	Palamau, Daltonganj	1	1	...	...	...	79,627	286	146	47	479	313	46	24	383	862
	Sambalpur, Hingir-Rampur	1	1	...	1	1	52,892	278	107	...	385	132	17	8	157	542
	Sonthal Parganas—Jainty	3	2	1	1	1	86,771	209	234	...	443	342	89	22	453	896
	Sonthal Parganas—Raniganj	4	...	4	2	2	5,117	32	29	1	62	21	29	2	52	114
	Total	444	183	261	313	600	11,931,141	36,468	28,081	478	65,027	26,556	12,519	1,808	40,883	105,910
Central Provinces	Chanda, Ballarpur	3	3	...	3	4	95,303	632	33	6	671	402	105	14	521	1,192
	Chhindwara, Pench Valley	7	6	1	6	9	204,502	887	337	41	1,265	248	129	38	415	1,680
	Narsinghpur, Mohpani	1	1	...	...	...	71,693	572	247	...	819	484	54	...	538	1,357
	Yeotmal	1	...	1	...	...	...	...	...	...	...	9	7	...	16	16
	Total	12	10	2	9	13	371,498	2,091	617	47	2,755	1,143	295	52	1,490	4,245

North-West Frontier Province.	Hazara	1	...	1	...	...	215	8	...	...	8	6	...	...	6	14
Punjab	Jhelum	6	...	6	...	...	40,322	582	...	23	605	221	...	9	230	835
	Mianwali	3	...	3	...	...	2,916	26	...	...	26	18	...	...	18	44
	Shahpur	2	...	2	...	...	6,631	55	...	...	55	99	...	...	99	154
	TOTAL	11	...	11	...	...	49,869	663	...	23	686	338	...	9	347	1,033
	GRAND TOTAL (COAL) FOR 1917	694	352	342	506	869	17,326,384	56,732	37,703	665	95,150	38,105	18,153	2,275	58,533	153,683
	" " OF PRECEDING YEAR	565	332	233	422	808	16,419,082	55,957	35,346	583	91,886	34,253	15,348	1,972	51,573	143,459
	DIFFERENCE	+129	+20	+109	+74	+69	+907,302	+825	+2,357	+82	+3,264	+3,852	+2,805	+303	+6,960	+10,224
							B.—MICA.									
							Cwts.									
Bihar and Orissa	Bhagalpur	2	...	2	...	...	4	10	4	...	14	...	...	...	...	14
	Gaya	54	17	37	...	...	5,837	801	472	124	1,397	548	398	168	1,114	2,511
	Hazaribagh	429	39	390	43	44	22,307	4,460	2,353	812	7,625	2,204	1,441	1,229	4,874	12,499
	Monghyr	26	3	23	...	...	939	576	223	62	866	163	60	17	240	1,106
	Sambalpur	1	...	1	...	...	104	60	45	17	122	...	...	...	...	122
	TOTAL	512	59	453	43	44	29,191	5,907	3,102	1,015	10,024	2,915	1,899	1,414	6,228	16,252
Madras	Nellore	96	12	84	2	2	5,863	1,689	1,039	138	2,866	406	347	120	873	3,739*
	Salem	3	...	3	...	...	126	33	...	...	33	52	55	13	120	153
	TOTAL	99	12	87	2	2	5,989	1,722	1,039	138	2,899	458	402	133	993	3,892

* Includes labour figures for samarskite (see page 31).

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1917—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
								B.—MICA—*contd.*								
							Cwts.									
Rajputana	Ajmer-Merwara	25	1	24	3	3	707	198	29	11	238	74	43	16	133	371
	Beawar	1	...	1	...	...	9	8	2	...	10	4	...	...	4	14
	TOTAL	26	1	25	3	3	716	206	31	11	248	78	43	16	137	385
	GRAND TOTAL (MICA) FOR 1917	637	72	565	48	49	35,896	7,835	4,172	1,164	13,171	3,451	2,344	1,563	7,358	20,529
	" " OF PRECEDING YEAR	452	60	392	75	76	35,978	6,367	3,674	1,027	11,068	2,731	1,604	1,088	5,423	16,491
	DIFFERENCE	+185	+12	+173	—27	—27	—82	+1,468	+498	+137	+2,103	+720	+740	+475	+1,935	+4,038
								C.—MANGANESE.								
							Tons.									
Bombay	Panch Mahals	2	...	2	...	...	26,690	449	162		654	179	34	11	224	878
Central Provinces	Balaghat	24	...	24	16	16	231,670	2,369	2,217	145	4,731	774	542	98	1,414	6,145
	Bhandara	4	...	4	6	7	36,091	185	216	22	423	83	32	2	117	540
	Chhindwara	3	1	2	2	3	65,685	709	911	21	1,641	228	84	16	428	2,069
	Jabalpur	1	...	1	...	...	...	6	7	...	13	...	...	...	...	13
	Nagpur	21	1	20	16	16	135,234	1,644	1,525	12	3,181	530	358	61	949	4,130
	TOTAL	53	2	51	40	42	468,680	4,913	4,876	200	9,989	1,715	1,016	177	2,908	12,897

Madras	Vizagapatam . . .	3	...	3	...	...	1,682	94	62	7	163	26	12	2	40	20
	GRAND TOTAL (MANGANESE) FOR 1917	58	2	56	40	42	497,052	5,456	5,100	250	10,806	1,920	1,062	190	3,172	13,978
	" " OF PRECEDING YEAR	62	4	58	44	47	568,032	6,669	5,255	284	12,208	1,993	1,138	199	3,330	15,538
	DIFFERENCE . . .	— 4	— 2	— 2	— 4	— 5	—70,980	—1,213	—155	—34	—1,402	—73	—76	— 9	—158	—1,560
							D.—LIMESTONE.									
							Tons.									
Central Provinces . .	Jabalpur, Katni . . .	32	1	31	...	...	82,340	488	807	34	1,329	208	225	35	468	1,797*
	TOTAL OF PRECEDING YEAR	35	5	30	14	15	45,290	428	697	26	1,151	248	196	34	478	1,629
	DIFFERENCE . .	— 3	— 4	+ 1	—14	—15	+37,050	+60	+110	+ 8	+178	—40	+29	+ 1	—10	+168
							E.—SALT.									
							Tons.									
Panjab . . .	Jhelum	2	1	1	...	...	131,438	460	351	46	857	59	...	...	59	916
	Mianwali	1	...	1	...	...	11,942	71	...	18	89	...	...	...	...	89
	Shahpur	1	...	1	...	...	9,162	48	36	8	92	...	...	...	...	92
	GRAND TOTAL (SALT) FOR 1917	4	1	3	...	...	152,542	579	387	72	1,038	59	...	...	59	1,097
	" " OF PRECEDING YEAR	4	...	4	3	7	160,357	425	295	55	775	52	...	...	52	827
	DIFFERENCE . . .	...	+ 1	— 1	— 3	— 7	—7,815	+154	+92	+17	+263	+7	...	...	+ 7	+270

* Includes labour figures for fullers-earth (see page 30).

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1917—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines. Worked by mechanical power.	Number of mines. Not worked by mechanical power.	Number of mines inspected during the year. Number of mines inspected.	Number of mines inspected during the year. Number of inspections.	Total output.	Average number of persons employed daily in and about the mines. Below ground. Adult males.	Adult females.	Children (under 13).	Total below ground.	Above ground. Adult males.	Adult females.	Children (under 13).	Total above ground.	Grand total below and above ground.
							F.—GEMS.									
							(a)—Rubies.									
	Mogok					...	Carats. 132,409									
							(b) Sapphires.									
Burma	Mogok	2	2	...	...	...	32,369	739	...	...	739	506	...	...	506	1,245
							(c) Spinels.									
	Mogok					...	33,422									
	TOTAL	2	2	...	...	...	198,200	739	...	...	739	506	...	...	506	1,245
	GRAND TOTAL (GEMS) FOR 1917	2	2	...	...	...	198,200	739	...	...	739	506	...	...	506	1,245
	" " OF PRECEDING YEAR	2	2	...	...	...	209,724	659	...	...	659	543	...	...	543	1,202
	DIFFERENCE	...	...	...	...	...	—11,524	+80	...	...	+80	—37	...	...	—37	+43
							G.—SLATE.									
							Tons.									
Bihar and Orissa	Monghyr	4	...	4	...	...	1,900	65	30	18	113	38	...	...	38	151
	Gurdaspur	1	...	1	...	...	75	11	...	...	11	...	...	...	...	11
Panjab	Gurgaon	4	...	4	4	4	1,314	92	...	33	125	15	...	3	18	143
	Kangra	5	...	5	...	...	5,442	169	...	...	169	48	61	28	137	306

	TOTAL .	10	...	10	4	4	6,831	272	...	33	305	63	61	31	155	460
	GRAND TOTAL (SLATE) FOR 1917.	13	...	13	4	4	6,731	337	30	51	418	101	61	31	193	611
	" " OF PRECEDING YEAR.	14	...	14	...	...	9,344	424	42	28	494	135	77	39	251	745
	DIFFERENCE . . .	—1	...	—1	+4	+4	—613	—87	—12	+23	—76	—34	—16	—8	—58	—134
							H.—GOLD.									
							Ozs.									
Bihar and Orissa . .	Singhbhum . . .	1	...	1	1	1	2,462	37	21	...	58	42	18	1	61	119
Madras	Anantapur	3	3	...	3	5	20,529	852	...	...	852	698	124	94	916	1,768*
	GRAND TOTAL (GOLD) FOR 1917.	4	3	1	4	6	22,991	889	21	...	910	740	142	95	977	1,887
	" " OF PRECEDING YEAR.	4	3	1	3	7	23,235	961	18	3	982	758	166	148	1,072	2,054
	DIFFERENCE . . .	...	...	...	+1	—1	—244	—72	+3	—3	—72	—18	—24	—53	—95	—167
							I.—IRON ORE.									
							Tons.									
Rajputana . . .	Ajmer-Merwara . . .	1	...	1	...	...	1	7	...	...	7	1	...	...	1	8
Bihar and Orissa . .	Puri	†...	...	...	...	...	...	...	...	...	...	17	...	5	22	22
	Singhbhum . . .	2	1	1	...	...	178,302	549	432	104	1,085	332	159	...	491	1,576
	TOTAL .	2	1	1	...	...	178,302	549	432	104	1,085	349	159	5	513	1,598
	GRAND TOTAL (IRON) FOR 1917.	3	1	2	...	...	178,303	556	432	104	1,092	350	159	5	514	1,606
	" " OF PRECEDING YEAR.	3		1	...	...	142,606	456	309	35	800	256	101	8	365	1,165
	DIFFERENCE . . .	...	—1	+1	...	...	+35,697	+100	+123	+69	+292	+94	+58	—3	+149	+441

* Includes labour figures for Madras, Anantapur, Silver, page—31.

† Mine not worked during the year, labour employed in extracting red oxide from old stock of ore.

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1917—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							J.—WOLFRAM. Cwts.									
Bihar and Orissa	Singhbhum	1	...	1	...	...	200	19	18	...	37	...	...	...	...	37
Burma	Mergui	2	...	2	...	...	3,559	169	...	...	169	124	20	12	156	325
	Tavoy	132	4	128	38	97	73,494	4,494	25	4	4,523	4,248	157	68	4,473	8,996
	Thaton	12	...	12	...	...	2,059	414	114	45	573	228	144	73	445	1,018
	Total	146	4	142	38	97	79,112	5,077	139	49	5,265	4,600	321	153	5,074	10,339
	GRAND TOTAL (Wolfram) for 1917.	147	4	143	38	97	79,312	5,096	157	49	5,302	4,600	321	153	5,074	10,376
	" " of preceding year.	90	3	87	60	128	59,094	4,302	109	27	4,438	3,889	310	23	4,222	8,660
	Difference	+57	+1	+56	—22	—31	+20,218	+794	+48	+22	+864	+711	+11	+130	+852	+1,716

K.—MAGNESITE.

Tons.

Madras	Salem	2	...	2	2	2	18,192	376	376	510	1,262	33	...	20	53	1,315
	TOTAL OF PRECEDING YEAR	2	...	2	2	2	17,540	382	462	479	1,323	77	11	29	117	1,440
	DIFFERENCE	...	...	...	...	...	+652	—6	—86	+31	—61	—44	—11	—9	—64	—125

L.—CHROMITE.

Cwts.

Baluchistan	Zhob	26	...	26	4	4	313,180	59	...	...	59	35	...	...	35	94
Bihar and Orissa	Singhbhum	4	...	4	...	...	32,149	241	273	40	554	40	12	3	55	609
	GRAND TOTAL (CHROMITE) FOR 1917.	30	...	30	4	4	345,329	300	273	40	613	75	12	3	90	703
	TOTAL OF PRECEDING YEAR	11	2	9	...	...	100,080	179	208	29	416	481	...	...	481	897
	DIFFERENCE	+19	—2	+21	+4	+4	245,249	+121	+65	+11	+197	—406	+12	+3	—391	—194

APPENDIX I—*contd.*

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1917—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 13).	Total below ground.	Adult males.	Adult females.	Children (under 13).	Total above ground.	
							M.—COPPER ORE.									
							Tons.									
Bihar and Orissa	Singhbhum	2	1	1	1	5	20,108	472	...	...	472	810	335	55	1,200	1,672
	Total of preceding year	6	1	5	...	...	2,671	345	...	...	345	660	198	42	900	1,245
	Difference	—4	...	—4	+1	+5	+17,437	+127	...	...	+127	+150	+137	+13	+300	+427
							N.—BAUXITE.									
							Cwts.									
Central Provinces	Jabalpur	1	...	1	...	...	14,300	18	16	...	34	6	4	2	12	46
	Total of preceding year	1	...	1	1	1	15,000	15	17	...	32	7	...	...	7	39
	Difference	...	...	...	—1	—1	—700	+3	—1	...	+2	—1	+4	+2	+5	+7

O.—CLAY.

							Tons.									
Bihar and Orissa	Manbhum	2	...	2	...	...	18,272	60	55	10	125	58	49	...	107	232
	Palamau	1	...	1	...	...	2,371	11	9	6	26	12	8	5	25	51
	TOTAL	3	...	3	...	...	20,643	71	64	16	151	70	57	5	132	283
Central Provinces	Jabalpur	6	2	4	...	...	32,550	96	126	17	239	35	9	5	49	288
Delhi	Delhi	1	...	1	...	...	2,203	5	...	...	5	9	...	...	9	14
	GRAND TOTAL (CLAY) FOR 1917.	10	2	8	...	...	55,396	172	190	33	395	114	66	10	190	585
	TOTAL OF PRECEDING YEAR	12	1	11	4	4	36,117	119	145	14	278	70	28	5	103	381
	DIFFERENCE	−2	+1	−3	−4	−4	+19,279	+53	+45	+19	+117	+44	+38	+5	+87	+204

P.—GALENA.

							Cwts.									
Central Provinces	Drug	1	...	1	...	...	...	...	...	...	...	5	15	...	20	20
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	140	10	20	...	30	2	25	...	27	57
	DIFFERENCE	...	...	...	...	...	−140	−10	−20	...	−30	+3	−10	...	−7	−37

Q.—TIN.

							Cwts.									
Burma	Mergui	3	...	3	...	...	211	49	...	...	49	7	2	...	9	58
	Tavoy	3	1	2	...	...	1,752	...	...	...	...	99	...	...	99	99
	Thaton	3	...	3	...	...	1,677	28	8	2	38	127	6	3	136	174
	TOTAL	9	1	8	...	...	3,640	77	8	2	87	233	8	3	244	331
	TOTAL OF PRECEDING YEAR	6	1	5	...	...	1,757	70	...	...	70	555	900	100	1,555	1,625
	DIFFERENCE	+3	...	+3	...	...	+1,883	+7	+8	+2	+17	−322	−892	−97	−1,311	−1,294

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1917—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines.		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							R.—STEATITE.									
							Cwts.									
Central Provinces	Jabalpur	5	...	5	1	1	32,777	79	95	...	174	39	53	18	110	284
Madras	Kurnool	1	...	1	...	...	207	2	6	...	8	5	6	...	11	— 19
Rajputana	Ajmer Merwara	2	...	2	...	...	1,098	9	...	...	9	1	2	3	6	15
	GRAND TOTAL (STEATITE) FOR 1917	8	...	8	1	1	34,082	90	101	...	191	45	61	21	127	318
	" " OF PRECEDING YEAR.	6	...	6	1	1	18,044	94	58	5	187	54	45	12	111	298
	DIFFERENCE	+2	...	+2	...	...	+16,038	—4	+13	—5	+4	—9	+16	+9	+16	+20
							S.—FULLERS' EARTH.									
							Tons.									
Central Provinces	Jabalpur	...	...	...	...	...	334*	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	...	...	...	1	1	179	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	—1	—1	+ 155	...	...	...	...	...	...	...	...	...

* Won from a limestone mine in Jabalpur.

T.—SILVER.																
							Oz.									
Madras	Anantapur	...	...	...	...	...	1,281*	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	1,362	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	...	...	−81	...	...	...	...	...	...	...	...	...
U.—SAMARSKITE.																
							Cwts.									
Madras	Nellore	...	...	...	...	...	67†	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	...	...	+ 67	...	...	...	...	...	...	...	...	...
V.—GRAPHITE.																
							Cwts.									
Rajputana	Ajmer-Merwara	5	...	5	...	...	847	25	...	...	25	8	17	4	29	54
	TOTAL OF PRECEDING YEAR	3	...	3	...	...	21,328	118	19	...	137	11	4	...	15	152
	DIFFERENCE	+2	...	+2	...	...	−20,481	−93	−19	...	−112	−3	+13	−4	+14	−98
W.—YELLOW OCHRE																
							Ton.									
Central Provinces	Chanda	1	...	1	...	...	403	8	...	...	8	8	12	...	20	28
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE	+ 1	...	+ 1	...	...	+403	+ 8	...	...	+ 8	+ 8	+12	...	+20	+28
X.—MOLYBDENITE.																
							Cwts.									
Burma	Tavoy	...	...	...	...	...	27‡	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	2	...	2	...	...	8	10	...	...	10	5	...	...	5	15
	DIFFERENCE	−2	...	−2	..	...	+19	−10	...	...	−10	− 5	...	...	− 5	−15

‡ Won from a wolfram mine in Tavoy. | † Won from a mica mine in Nellore. | * Won from Anantapur gold mines.

STATISTICS OF MINES AND MINERALS—*concld.*

Table No. 1—*concld.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1917—*concld.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							Y.—BISMUTH ORE.									
Burma	Tavoy	...		...	...	...	Cwts.* 5	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	..	...	...
	DIFFERENCE	...	...	...	...	...	+ 5	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (ALL MINERALS) 1917.	1,663	442	1,221	655	1,086	Tons. 18,339,785 Cwts. 513,505 Carats. 198,200 Troy ounces. 24,272	80,295	49,773	2,974	133,042	51,377	22,997	4,465	78,839	211,881
	GRAND TOTAL OF PRECEDING YEAR.	1,283	416	867	630	1,097	Tons. 17,401,220 Cwts. 251,429 Carats. 209,724 Troy ounces. 24,597	77,990	46,704	2,595	127,289	46,780	20,151	3,699	70,630	197,916
	DIFFERENCE	+380	+26	+354	+25	—11	Tons. +938,565 Cwts. +262,076 Carats. —11,524 Troy ounces. —325	+2,305	+3,069	+379	+5,753	+4,597	+2,846	+766	+8,209	+13,962

* Mineral won from a wolfram mine in Tavoy.

APPENDIX I—*contd.*

Table 2.

Analyses of figures relating to output of coal.

Province.	District and mineral field.	Opening stocks.		Raisings.		Total.		Despatches.		Colliery Consumption.		Coal delivered to coking.		Closing stocks.		Coke made.	
		Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Hard coke.	Soft coke.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Assam	Lakhimpur	490	...	291,484	...	291,974	...	288,796	...	2,045	...	455	...	678	...	151	...
	Naga Hills	6,785	...	8,906	...	15,691	...	9,923	...	30	...	...	...	5,738	...	...	...
	Sibsagar	...	...	...	915	...	915	...	885	...	10	...	...	...	20	...	...
	Total	7,275	...	300,390	915	307,665	915	298,719	885	2,075	10	455	...	6,416	20	151	...
Baluchistan	Kalat	27	46	1,985	4,484	2,012	4,530	1,972	4,366	...	...	...	...	40	164	...	...
	Loralai	...	...	104	...	104	...	89	...	...	...	...	...	15	...	...	...
	Quetta-Pishin	287	839	464	4,231	751	5,070	441	4,218	...	...	...	...	310	852	...	...
	Sibi-Khost	69	398	7,686	21,831	7,755	22,229	7,505	17,062	55	4,401	...	...	195	766	...	...
	Total	383	1,283	10,239	30,546	10,622	31,829	10,007	25,646	55	4,401	...	...	560	1,782	...	...
Bengal	Bankura-Raniganj	...	659	4,394	820	4,394	1,479	4,295	12	107	386	...	...	2	1,087	...	...
	Birbhum „	...	...	2,055	499	2,055	499	2,055	75	...	424	...	...	...	...	...	...
	Burdwan „	52,900	83,108	3,747,529	876,274	3,800,429	959,382	3,581,735	417,587	98,487	509,301	68,827	12,730	51,381	19,763	4,361	46,171
	Total	52,900	83,767	3,753,978	877,593	3,806,878	961,360	3,588,075	417,674	98,594	510,105	68,827	12,730	51,383	20,850	4,361	46,171

APPENDIX I—*contd.*

Table 2—*concld.*

Analyses of figures relating to output of coal—concld.

Province.	District and mineral field.	Opening stocks.		Raisings.		Total.		Despatches.		Colliery consumption.		Coal delivered to coking.		Closing stocks.		Coke made.	
		Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Hard coke.	Soft coke.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Bihar and Orissa	Hazaribagh—Bokaro Ramgarh	390	1,258	266,409	93,196	266,799	94,454	259,865	73,536	265	6,744	229	7,438	6,440	6,736	...	5,007
	Hazaribagh—Giridih	3,097	12,079	621,575	202,432	624,672	214,511	620,325	98,966	50	54,976	...	55,498	4,297	5,071	42,509	...
	Hazaribagh—Jharia	5,518	4,542	90,333	18,371	95,851	22,913	85,047	13,999	1,741	7,523	243	19	8,819	1,373	12	162
	Manbhum—Jharia	288,036	186,255	7,936,745	1,738,339	8,224,811	1,924,594	7,542,261	873,939	261,736	701,881	187,150	245,807	232,634	103,907	142,761	102,115
	Manbhum—Raniganj	31,067	10,259	611,417	127,917	642,484	138,176	457,372	58,021	38,498	63,250	103,360	7,683	43,254	5,242	81	71,665
	Palamau-Daltonganj	158	513	68,089	11,538	68,247	12,051	67,010	4,698	...	6,835	...	...	1,237	518	...	...
	Sambalpur-Hingir Rampur	19	...	37,815	15,077	37,834	15,077	35,972	2,748	1,861	12,328	...	...	...	2	...	...
	Santal-Parganas—Jainty	197	2,271	82,942	3,829	83,139	6,100	77,508	56	4,418	5,852	...	...	1,212	193	...	...
	Santal-Parganas—Raniganj	5	75	4,387	730	4,392	805	3,963	215	135	355	...	...	295	234	...	...
	TOTAL	328,517	217,252	9,719,712	2,211,429	10,048,229	2,428,681	9,149,323	1,126,178	308,704	859,744	290,982	316,446	298,188	127,846	185,363	178,949
Central Provinces	Chanda	95	312	70,968	24,335	71,063	24,647	70,010	9,662	758	13,453	...	571	295	961	380	...
	Chhindwara	467	860	167,404	37,098	167,871	37,958	167,117	21,382	412	15,800	...	...	342	776	...	...
	Narsinghpur	716	69	62,111	9,582	62,827	9,651	47,497	801	12,587	6,596	30	82	2,713	2,172	74	...
	Yeotmal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	1,278	1,241	300,483	71,015	301,761	72,256	284,624	31,845	13,757	35,849	30	653	3,350	3,909	454	...
North-West Frontier Province.	Hazara	...	...	...	215	...	215	...	215	...	...	...	...	...	...	...	...
Panjab	Jhelum	8	2,062	5,251	35,071	5,259	37,133	4,859	31,237	400	1,591	...	...	...	4,305	...	...
	Mianwali	...	412	572	2,344	572	2,756	572	2,606	...	...	...	...	...	150	...	...
	Shahpur	...	898	682	5,949	682	6,847	682	6,043	...	225	...	...	...	579	...	...
	TOTAL	8	3,372	6,505	43,364	6,513	46,736	6,113	39,886	400	1,816	...	...	...	5,034	...	...
	GRAND TOTAL 1917	330,361	306,915	14,091,307	3,235,077	14,481,668	3,541,992	13,336,861	1,642,329	423,585	1,411,925	360,294	329,828	359,897	158,941	190,329	225,120

APPENDIX I—*contd.*

Table No. 3.

Number of mines opened and closed during the year ending 31st December 1917.

Province.	District.	Number of mines opened.	Number of mines closed.
	A.—COAL.		
Assam	Lakhimpur	1	...
	Sibsagar	1	...
	Total	2	...
Baluchistan	Sibi-Khost	3	...
Bengal	Bankura	1	...
	Burdwan-Raniganj	24	5
	Total	25	5
Bihar and Orissa	Hazaribagh — Bokaro-Ramgarh	13	3
	Hazaribagh — Giridih	2	1
	Manbhum — Jharia	73	8
	Manbhum — Raniganj	30	3
	Sonthal Parganas, Raniganj	2	...
	Total	120	15
Central Provinces	Chanda	1	...
	Chhindwara	1	...
	Total	2	...
	Total (Coal)	152	20
	B.—MICA.		
Bihar and Orissa	Gaya	21	5
	Hazaribagh	157	88
	Monghyr	23	2
	Sambalpur	1	...
	Total	202	95
Madras	Nellore	23	15
	Salem	2	...
	Total	25	15

APPENDIX I—*contd.*

Table No. 3—*contd.*

Number of mines opened and closed during the year ending 31st December 1917—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
	B—MICA—*contd.*		
Rajputana	Ajmer-Merwara	17	4
	Beawar	1	...
	Total	18	4
	Total (Mica)	245	114
	C.—MANGANESE.		
Central Provinces	Balaghat	3	3
	Chhindwara	1	...
	Jabalpur	...	1
	Nagpur	...	4
	Total Manganese	4	8
	D.—YELLOW OCHRE.		
Central Provinces	Chanda	1	...
	E.—LIMESTONE.		
Central Provinces	Jabalpur	9	14
	F.—IRON ORE.		
Bihar and Orissa	Singbhum	1	...
Rajputana	Ajmer Merwara	1	...
	Total Iron	2	...
	***G.*—WOLFRAM.**		
Bihar and Orissa	Singhbhum	...	1
Burma	Mergui	1	...
	Tavoy	53	29
	Thaton	2	2
	Total Burma	56	31
	Total (Wolfram)	56	32

APPENDIX I—*contd.*

Table No. 3—*concld.*

Number of mines opened and closed during the year ending 31st December 1917—*concld.*

Province.	District.	Number of mines opened.	Number of mines closed.
	H.—CHROMITE.		
Baluchistan	Zhob	3	...
	I.—COPPER.		
Bihar and Orissa	Singhbhum	...	1
	J.—CLAY.		
Bihar and Orissa	Manbhum	1	...
Delhi	Delhi	1	...
	Total (Clay)	2	...
	K.—GALENA.		
Central Provinces	Drug	1	1
	L.—TIN.		
Burma	Mergui	1	2
	Tavoy	2	...
		...	...
	Total (Tin)	3	2
	M.—STEATITE.		
Central Provinces	Jabalpur	...	3
Rajputana	Ajmer-Merwara	2	...
	Total (Steatite)	2	3
	N.—GRAPHITE.		
Rajputana	Ajmer-Merwara	3	1
	GRAND TOTAL (all mines)	483	196

APPENDIX I—*concld.*

Table No. 4.

The following table shows the fluctuations in the output of the principal minerals raised from mines classed under the Indian Mines Act, 1901. The other minerals raised are gems, slate, iron ore, magnesite, chromite, tin, steatite, clay, galena, bauxite, fuller's earth, silver, graphite, molybdenite, yellow ochre, bismuth and samarskite.

Year.	Coal.	Manganese.	Mica.	Limestone.	Salt.	Wolfram.	Gold.	Copper ore.
	Tons.	Tons.	Cwts.	Tons.	Tons.	Cwts.	Troy ozs.	Tons.
1908 . .	12,149,020	494,942	46,208	101,569	93,779	...	7,242	10
1909 . .	11,294,227	357,205	32,011	56,502	126,987	144	5,615	7
1910 . .	11,387,716	468,669	21,375	81,258	119,867	18	3,269	864
1911 . .	12,048,726	441,426	31,686	92,692	124,603	8,394	8,277	2,079
1912 . .	14,044,368	423,464	41,660	91,784	131,233	25,401	7,269	8,984
1913 . .	15,486,318	637,391	43,650	71,259	138,540	27,520	11,019	3,639
1914 . .	15,727,631	555,672	38,189	146,505	135,518	31,526	19,873	4,400
1915 . .	16,352,480	378,172	24,063	64,179	144,770	39,432	24,320	8,010
1916 . .	16,419,082	568,032	35,978	45,290	160,357	59,094	23,235	2,671
1917 . .	17,326,384	497,052	35,896	82,340	152,542	79,312	22,991	20,103

Table No. 5.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rates during the years 1908 to 1917 in respect of coal mines under the Indian Mines Act, 1901 :—

Year.	Amount of coal raised.	Average number of persons working daily below and above ground.	Number of deaths below and above ground.	Death-rates.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above ground.
1908 . . .	12,149,020	120,107	164	13·49	1·36
1909 . . .	11,294,227	109,291	119	10·53	1·08
1910 . . .	11,387,716	105,285	160	14·05	1·52
1911 . . .	12,048,726	106,598	148	12·28	1·38
1912 . . .	14,044,368	121,392	157	11·17	1·29
1913 . . .	15,486,318	133,042	185	11·95	1·39
1914 . . .	15,727,631	137,851	145	9·22	1·05
1915 . . .	16,352,480	145,537	166	10·15	1·14
1916 . . .	16,419,082	143,459	169	10·29	1·18
1917 . . .	17,326,384	153,683	163	9·41	1·06

APPENDIX II.

ACCIDENTS IN MINES.

Table No. I.

List of Fatal Accidents in mines regulated by the Indian Mines Act, 1901, during the year 1917.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			EXPLOSION OF FIRE DAMP—(*1 death*).			
1	30th March, 7-30 A.M.	Chowrasi mine, Dishergarh P. O., Bihar & Orissa.	Equitable Coal Co., Ld.	Soam Manjhi, (*m.*) 20, *Miner.*	Coal .	Deceased entered his working place with a naked light and ignited an accumulation of gas. He was severely burned about the body, and died four days later. Inspection and inquiry made.
			FALLS OF ROOF AND SIDES—(*deaths*).			
			(*a*) Falls of roof—(*61 deaths.*)			
2	3rd January, 7 A.M.	Chinchuria mine, Asansol P. O., Bengal.	Baraboni Coal Concern, Ld.	Jina Manjhi, (*m.*), 24, *Coal-carrier.*	Coal .	Whilst a miner was cutting coal in a gallery, 6 feet high, a mass of shale, measuring 8′×3′ 6″×1′3″ thick, fell from between smooth joints in the roof. Deceased, who was lifting a loaded basket at the time, was struck down and killed instantaneously. Inspection and inquiry made.
3	12th February, 11 P.M.	Ghugus mine, Ballarpur P. O., Central Provinces.	Sir Kasturchand Daga and the Hon'ble Mr. M. B. Dadabhoy.	Gugillam Ramaya, (*m.*), 30, *Miner.*	Coal .	Deceased with two other miners was erecting a pair of timbers at the face of an inclined drift. Whilst so doing, a mass of roof coal, measuring 11′×8″ to 9″ ×3′, fell. Deceased was instantly killed, and the others received serious injuries. Inspection and inquiry made.
4	13th February, 11 A.M.	Gamrali mine, Dandot P.O., Punjab.	Ishardas Kapur . .	Mohd. Azim (*m.*), 14, *Coolie.*	Coal .	Deceased was killed by a fall of roof, 4′×2′×1′ 6″, which fell on his head and killed him instantly.
5	24th February, 7 A.M.	Banstakola mine, Jharia P. O., Bihar and Orissa.	New Beerbhum Coal Co., Ld.	Kandi Majhian, (*f.*), 30 *Coal-carrier.*	Coal .	Deceased was loading coal under some overhanging roof coal, a piece of which, measuring about 7′×4′×1′ 6″, fell without any warning, from a height of 7′ 6″, and struck her. She sustained severe injuries and died on the following morning. Inspection and inquiry made.
6	28th February, 10-25 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Thamon Singh, (*m.*), 23, "*Opening*" *man.*	Coal .	Whilst cutting coal in an "opening", 18′×10′×6′, deceased was struck by a mass of coal, weighing about half a ton, which fell without warning from a "slip" in the roof. He succumbed to his injuries four days later.
7	3rd March, 1-40 P.M.	Kantapahari mine, Panuria P. O., Bengal.	Barakar Coal Co., Ld. .	Jagroo Moochi, (*m.*), 25, *Miner.*	Coal .	Goafing was in operation, when a sudden weight of the roof occurred. Deceased with the other work persons ran towards an old shaft. Deceased was caught by the falling roof and killed. Three other persons were injured. Inspection and inquiry made (*See Report, page 6.*)

Fatal Accidents, 1917—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) **Falls of roof**—*contd.*			
8	12th March, 9-30 A.M.	Dishergarh mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Churamon Koiri, (*m.*), 32, *Timber coolie.*	Coal	Deceased passed through a fence, contrary to orders, and entered a goaf just when a fall of stone occurred. He was struck on the head by a piece of stone, which fell from a height of 19 feet, and was killed outright. Inspection and inquiry made.
9	20th March, Midnight.	Kalimati mine, Kalimati P. O., Bihar and Orissa.	Indian Mineral Syndicate	Ram Sing, (*m.*), 30, *Coolie.*	Wolfram	Deceased while undercutting, loosened a mass of ore which fell suddenly striking him on the side of the head, and killed him.
10	23rd March, 8 45 A.M.	Damudapur mine, Nandi P. O., Bengal.	Bengal Coal Co., Ld.	Taloo Singh, (*m.*), 32, *Timber coolie*; Gujra Mahaton, (*m.*), 20, *Carpenter.*	Coal	The two deceased, who were being supervised by a Sirdar, had just completed the setting of a prop to safeguard some stone, lying between two slips in the roof near a goaf-edge, when a portion of the stone, measuring 5′×2′ 10″×1′ 10″ thick, swayed out the prop and fell upon them. They were killed outright. Inspection and inquiry made.
11	26th March, 1-30 P.M.	Nandi mine, Nandi P. O., Bengal.	Adjai Coal Co., Ld.	Chullan Chamar, (*m*), 25, *Miner.*	Coal	Deceased was working at the corner of a pillar of coal, when a small quantity of stone fell from the edge of an adjoining goaf and rolled near him. Medical evidence shows that he died from shock as a result of fright. Inspection and inquiry made.
12	29th March, 2-30 P.M.	Damaghurria mine, Kulti P. O., Bengal.	Damaghurria Coal Co., Ld.	Sankhu Manjhi, (*m.*), 45, *Miner.*	Coal	Deceased was cutting floor coal in a gallery, when a piece of roof coal, measuring 24′×6′ 6″×3′ 7″ thick, fell upon him, from a height of 7 feet, and killed him outright. One other person was injured. Inspection and inquiry made.
13	18th April, 9-45 A.M.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Barakar Coal Co., Ld.	Robi Mullick, (*m.*), 30, *Coal-cutter.*	Coal	Deceased was struck by a mass of roof stone, measuring 9′6″×10′5″×6″, which fell without any warning in his working place, from a height of 7 feet. Death was instantaneous. Inspection and inquiry made.
14	8th May, 3-30 P.M.	Harnai mine, Harnai P. O., Baluchistan.	Baluchistan Coal Co., Ld.	Dalal Pathan, (*m.*), 40, *Miner.*	Coal	Deceased was cutting coal in a 'long wall' face, when a piece of roof stone suddenly fell upon him and killed him.
15	9th May, 6 P.M.	Angarpatra mine, Katrasgarh P. O., Bihar and Orissa.	Messrs. B. and M. Trignuait.	Beni Singh, (*m.*), 35; Kalu Singh, (*m.*), 39, *Coal-cutters.*	Coal	The deceased persons entered a gallery which had been fenced off on account of bad roof, a mass of which, measuring 16′×5′ 10″×1′ 4″, fell without any warning from a concealed 'slip'. Both were killed instantly. Inspection and inquiry made.
16	22nd May, 11-30 A.M.	Sutikdih mine, Bhujudih P. O., Bihar and Orissa.	Sutikdih Coal Co., Ld.	Barju Mahato, (*m.*), 27, *Coal-cutter.*	Coal	Whilst engaged in cutting roof coal in a gallery, rising on a slope of 1 in 2, deceased was killed by a mass of about 1 ton of coal, measuring 7′×4 × 1′ which fell from a hidden 'slip'. His carrier, who was loading a basket at the time, sustained an injury to the spine. Inspection and inquiry made.

17	30th May, 4-30 A.M.	Chinchuria mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Suku Dhangoó, (*m.*), 25, *Miner.*	Coal	A piece of roof stone, measuring 12′ × 6′ × 2′ 1″ maximum thickness, fell from between two "slips," inclined towards each other, upon deceased, who sustained a dislocation of the left hip from the effects of which he died four days later. The "slips" were not disclosed before the accident. Inspection and inquiry made.
18	9th June, 10 P.M.	New Suratand mine, Jharia P. O., Bihar and Orissa.	New Suratand Coal Co., Ld.	Gopi Mahato, (*m.*), 22, *Shotfirer.*	Coal	Deceased, with three companions, was lighting the fuses of shotholes in knobs of coal supporting a mass of coal, measuring 50′ × 30′ × 20′, which was being 'dropped.' The coal fell without warning, and buried him before he could escape to a place of safety. Inspection and inquiry made. (*See Report, page 7.*)
19	27th June, 11 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Kadmakami, (*m.*), 25, *Tub-filler.*	Coal	A piece of coal, weighing about half a ton, fell from the roof, at a height of 7 feet, on to his head and killed him instantly.
20	3rd July, Midnight.	Ledo West mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gorey Ghati, (m.), 32, *Tub-filler.*	Coal	Whilst deceased was shovelling coal in an opening, about two tons of coal fell from the roof, at a height of 6 feet, without any warning, striking him on the head and killing him instantly.
21	5th July, 4 P.M.	Mandalpur mine, Nandi P. O., Bengal.	Mandalpur Coal Co., Ld.	Nilmoni Kora, (*f.*), 15, *Bailer.*	Coal	Deceased was pinned down by the fall of a piece of roof stone, measuring 4′ 6″ × 3′ 0″ × 5″, and died of suffocation before relief could be obtained. Inspection and inquiry made.
22	7th July, 4 A.M.	East Ledo mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Arkaram Rai, (*m.*), 32, *Sirdar*; Palamalchetri, (*m.*), 28, *Tub-filler.*	Coal	A fall of thirty tons of roof coal occurred in an 'opening,' which was 11 feet high, killing the two deceased outright.
23	11th July, Noon.	Gambrala mine, Choa Saidan Shah P. O., Panjab.	Thakurdas Ramjidas	Sher, son of Gaman, (*m.*), 23, *Miner.*	Coal	Deceased, while at work in a 'long wall' face was killed by a fall of roof, measuring 2′ 6″ × 1′ 6″ × 1′.
24	19th July, 1 P.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Ramdhir Singh, (*m.*), 30, *Coal cutter.*	Coal	Deceased was boring a shothole in the bottom of a pillar, when a mass of roof coal, weighing about 25 cwts., fell from a height of 20′ 0″ upon him. Inspection and inquiry made.
25	1st August, 9-30 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Bhuloo Musalman (*m.*), 32, *Loader.*	Coal	Deceased, while engaged in scraping coal towards a tub in an opening, was struck by portions of falling coal from the roof, about 15 feet high. The quantity was about one ton and gave practically no warning. He was killed instantly.
26	14th August, 6-30 P.M.	Banstakola mine, Jharia P. O., Bihar and Orissa.	New Beerbhum Coal Co., Ld.	Lalla Kutchi, (*m.*), 22, *Miner.*	Coal	Deceased was struck by a fall of roof coal, measuring 4′ × 3′ × 2″, which fell from a height of 18 feet. He died the following day.
27	16th August, 4-30 P.M.	Vanorakhas or South East Baraboni mine, Charnpur P. O., Bengal.	The Hon'ble Maharaja M. C. Nandi.	G. Jack, (*m.*), 31, *Manager.*	Coal	Deceased was removing a stack of coal, measuring about 3 feet square by 12 feet high, in a goaf, when the shale roof collapsed. All props were swayed out, and one of them struck him, causing fractures of the right thigh and pelvis, from the effects of which he died eight hours later. Inspection and inquiry made. (*See Report, page 7.*)
28	17th August, 8-50 P.M.	West Ledo mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Khanmohmed, (*m.*), 38; Ogn Makranie, (*m.*), 35, *Coal-shovellers.*	Coal	While shovelling coal in an opening, a mass of roof coal, weighing 5 tons, fell from a height of 20 feet, and killed the two deceased.

Fatal Accidents, 1917—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) **Falls of roof—*contd.***			
29	28th August, 3 A.M.	West Ledo mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Jadoo Lohar, (*m.*), 20, *Coal-shoveller.*	Coal	While shovelling coal in an opening a mass of roof coal, weighing one ton, fell from a height of 18 feet on the head of deceased, killing him on the spot.
30	1st September, 11 A.M.	Egarcoor mine, Mugma P. O., Bihar and Orissa.	New Chirkunda Coal Co.	Dukhan Roy, (*m.*), 35, *Miner.*	Coal	Deceased passed through a fence and started to wedge down a piece of coal which fell unexpectedly and knocked him down, crushing his left ankle and causing minor wounds on his body. The piece of coal was triangular in shape and measured 3′ 2″× 1′ 8 ″× 1′6″ thick. It fell from a height of 8 feet. He died the following day from shock. Inspection and inquiry made.
31	7th September, 1-30 P.M.	Kurkend mine, Kusunda P. O., Bihar and Orissa.	Sudamdih Coal Co., Ld.	Chattka Manjhi, (*m.*), 22, *Coal-carrier.*	Coal	Deceased was filling a basket of coal when a mass of roof coal, measuring 15′ 6″×12′ 0″× 3′ 6″, fell without any warning from a hidden "slip" killing him instantly. Inspection and inquiry made.
32	6th September, 2-45 P.M.	Eklahra mine, Pench P.O., Central Provinces.	Pench River Coal Co., Ld.	Shaikh Bhanji, (*m.*), 20, *Coal-filler.*	Coal	Deceased, while carrying coal from the coalface to a tub was killed by a fall of roof.
33	8th September, 1 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Monorathi Jaisoo, (*m.*),125, *Basket filler.*	Coal	Deceased was filling coal at the entrance of the opening, when a piece of coal, weighing about 3 cwts., fell from the roof, at a height of 14 feet, on to his head, killing him instantly.
34	11th September, 6 A.M.	Kendwadih mine, Jamadaba P. O., Bihar and Orissa.	Harriladih Coal Co., Ld.	Mayaram Gowre, (*m.*), 35, *Coal-cutter.*	Coal	Deceased went inside a fence into the goaf to cut coal from the lower side of a pillar. A mass of roof stone, measuring 34′ 0″ × 6′ 0″ ×1′ 0″, fell without warning and before he could escape part of it struck him. He sustained serious internal injuries and died almost immediately. Inspection and inquiry made.
35	12th September, 1 P.M.	Bansjora mine, Bansjora P. O., Bihar and Orissa.	Bansjora Coal Co., Ld.	Dinu Meah, (*m.*), 35, *Underground Sirdar.*	Coal	Deceased went underneath a pillar, which was standing on four "stooks," preparatory to dropping the coal overhead. One of the "stooks" collapsed without any warning, bringing down a mass of coal, which buried him completely. His body was recovered 24 hours afterwards. Inspection and inquiry made.
36	15th September, 5-30 A.M.	Sodepur No. 8 mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Daman Manjhi, (*m.*), 18 *Miner.*	Coal	Deceased was filling a basket of coal in a newly-opened goaf, when a triangular piece of roof coal, measuring 20′×7′×23″ thick, fell upon him, from a height of 10 feet. He was killed instantly. Inspection and inquiry made.
37	17th September, 11 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Daga Kami (Nepauli), (*m.*), 25, *Tub-filler.*	Coal	Deceased was filling coal in an opening, when a mass of roof coal, weighing about 80 lbs., fell from the roof, at a height of 25 feet, and struck him on the head, killing him instantly.

38	18th September, 4-30 P.M.	Alkusa North mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ltd.	Gulu Tudi, (*m.*), 28, *Coal-cutter.*	Coal	Deceased was in the act of dressing down the overhanging coal from a mushroom shaped pillar, 3 feet in diameter at the bottom, when a "stook" collapsed suddenly and he was buried under the fall and killed instantly. Inspection and inquiry made.
39	29th September, 4-30 A.M.	Bhagrand mine, Salanpur P. O., Bengal.	Borrea Coal Co., Ltd.	Sohagi Manjhian, (*f.*), 20, *Coal-carrier.*	Coal	A boulder of ironstone, measuring 2¼′ × 1′-6″ × 9″ thick, fell through a height of 11 feet from the roof and struck deceased on the right shoulder. She died from shock shortly after the accident. Inspection and inquiry made.
40	29th September, Noon.	Jotejanaki mine, Toposi P. O., Bengal.	S. Chowdhury.	Lukhi Manjhian, (*f.*), 35; Sukhi Manjhian, (*f.*), 21; *Coal carriers.*	Coal	The two deceased were sitting inside a fenced area, when a piece of roof shale, measuring 14′ × 4′ × 3″ thick, fell upon them from a height of 13 feet. Lukhi was killed outright and sukhi died, from shock, the next day. Inspection and inquiry made.
41	2nd October, 2 A.M.	Bhelatand mine, Sijua P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ltd.	Mohammed Din Meah, (*m.*), 32, *Coal-cutter.*	Coal	Deceased, in order to facilitate his coal cutting, knocked out a prop set within 3′ 0″ of the face of his gallery. A piece of roof, measuring 5′ 9″ × 2′ 6″ × 0′ 11″, broke away from a "slip", from a height of 6 feet, and struck him on the head. He was killed on the spot. Inspection and inquiry made.
42	22nd October, 10-5 P.M.	Ledo Valley West mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Moulsad, (*m.*), 44, *Head Sirdar.*	Coal	Three shots had been fired in the roof and shortly afterwards a mass of coal, weighing about 4 cwts., fell from the roof, at a height of 18 feet, and struck him on the head, killing him instantly.
43	27th October, 4 P.M.	Ledo Valley West mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ltd.	Sharip Musalman (*m.*), 22; Nazarkhan Musalman, (*m.*), 40, *Tub-fillers.*	Coal	While the two deceased were filling coal in an opening, a mass of coal, weighing about 30 cwts., fell from the roof at a height of 20 feet, and struck the two deceased. Sharip was killed outright and Nazirkhan died shortly after being admitted to hospital.
44	9th November, 4 A.M.	Albion mine, Nowagarh P. O., Bihar & Orissa.	Albion Coal Co., Ld.	Suku Manjhi (*m.*), 20, *Coal-cutter.*	Coal	A mass of roof coal, measuring 8′ 6″ × 8′ 0″ × 2′ 0″, fell without any warning from a concealed "slip" from a height of 9 feet, upon deceased, who was sitting down underneath it, killing him instantaneously. Inspection and inquiry made.
45	10th November, 4 A.M.	Bon Jumerri mine, Salanpur P. O., Bengal.	Bon Jumerri Anthracite Colliery Ld.	Chuni Manjhi, (*m.*), 35, *Miner.*	Coal	An undisclosed boulder in the roof, measuring 5′ × 0″ × 2′ 9″ × 1′ 0″ thick, fell from a height of 7 feet, and struck deceased on the head; he died eight hours later from the effects of his injuries. Inspection and inquiry made.
46	23rd November 2-30 P.M.	Lutchipur mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Jharri Kora, (*m.*), 24, *Miner.*	Coal	Deceased was standing under a piece of roof coal, measuring 2′ 0″ × 1′ 6″ × 8″, which he had previously loosened. It fell upon him, causing severe injuries to his head, which resulted in his death, five days later. Inspection and inquiry made.
47	9th December, 4 A.M.	Mohpani mine, Mohpani P. O., Central Provinces.	Great Indian Peninsula Railway Co.	Nankoo, (*m.*), 35, *Coal-hewer.*	Coal	While deceased was cutting coal in a gallery, a "weight" of roof coal occurred. This was followed by a fall of roof which killed him on the spot. He had been warned by another workman to cease working.
48	20th December, 8 P.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Porsha Joisa, (*m.*), 20, *Tub-filler.*	Coal	Whilst deceased was loading coal in an "opening," 43′ × 24′ × 18′ high, a mass of 4 tons of coal fell from the roof. He was struck on the head and killed instantaneously.
49	24th December, 2-45 P.M.	Ghusik mine, Kalipahari P. O., Bengal.	Ghusik and Muslia Collieries, Ld.	Dhona Mochi, (*m.*), 20; Gaju Mochi, (*m.*), 20; Pasupati Mochi, (*m.*), 14, *Coal-cutters.*	Coal	Whilst four miners were engaged in extracting a pillar of coal in a seam, 11′6″ thick, roof coal and stone from 3 to 5 feet thick, fell over an area, measuring 38′ × 16′. The three deceased were killed on the spot. Inspection and inquiry made. (*See Report, page 8.*)

Fatal Accidents, 1917—*contd.*

Serial number.	Date of hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) Falls of roof—*concld.*			
50	25th December, 4 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Karma Bahadur Gharti, (*m.*), 29, *Opening man.* Afleycharky, (*m.*), 30, Looraycharti, (*m.*), 21, *Tub-fillers.*	Coal	While seven persons were at work in an opening, an enormous mass of coal, estimated to weigh about 800 tons, fell from the roof and the front of the opening. Three persons escaped but the three deceased were struck by the coal and killed outright. One other person was injured.
51	29th December, 10-30 P.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co.	Ranjan Miah, (*m.*) 16, *Coal-cutter*; Dukni Telin (*f.*) 40, *Coal-carrier.*	Coal	Deceased were killed by a fall of roof coal at the top a self acting incline. A thickness of 2'6" of roof coal fell over an area measuring 27'×16'. Inspection and inquiry made.
			(*b*) Falls of side—(*50 deaths*).			
52	10th January, 7-30 P.M.	Barari mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Bandhu Meah, (*m.*), 35. *Propping carpenter*; Latu Kandu, (*m.*), 20, *Propping coolie.*	Coal	The two deceased with two other men broke down a fence and began to load up coal fallen from a stook of coal, 15 ft. square and 26 ft. high in a pillar cutting district. Owing to roof weight the stook was crushed out and the coal fell upon them. Both the deceased, were killed on the spot and the other two men were injured. Inspection and inquiry made.
53	25th January, 9-30 A.M.	South Wagon mine, Tavoy P. O., Burma.	Finlay Fleming and Co.	Fung Fat, (*m.*), 40, *Miner.*	Wolfram	Deceased was killed by a fall of partly decomposed granite which fell from the hanging wall at which he was working.
54	27th January, 3-30 A.M.	Sodepur mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Mungal Manjhi, (*m.*), 27, *Coal-cutter.*	Coal	Deceased was robbing a pillar when a mass of roof coal, weighing about 4 tons, fell upon him. He sustained serious injuries and died two hours later. Inspection and inquiry made.
55	31st January, 1-30 P.M.	Sutikdih mine, Bhujudih P. O., Bihar and Orissa.	Sutikdih Coal Co., Ld.	Sarum Mahato, (*m.*), 35, *Coal cutter.*	Coal	Deceased, in disobedience of orders, was undercutting the side of a pillar. Whilst so doing, a piece of stone—40"×22"×13"—fell from a height of 7 feet. He sustained injuries to which he succumbed a week later. Inspection and inquiry made.
56	1st February, Unknown.	Patalabari mine, Barakar P. O., Bihar and Orissa.	Kumardubi Firelay and Silica Works, Ld.	Jagru Mahato, (*m.*), 20, *Coolie.*	Clay	A piece of stone fell from the side of a quarry, over 20 feet deep, and struck deceased on the leg, fracturing it. He died the following morning.
57	1st February, 9-30 A.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Dayal Bhuiya, (*m.*), 32, *Coal-cutter.*	Coal	Deceased was employed in a pillar cutting district. Preparatory to commencing work he took a sounding pole and began to test some overhanging coal in his working place. A mass of some 30 cwts. of coal fell upon him from a height of 18 feet. He sustained injuries to which he succumbed three hours later. Inspection and inquiry made.

58	3rd February, 11-30 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Gaju Kahar, (*m.*), 30, *Hookman.*	Coal	Deceased went into a fenced gallery to rob the corner of a pillar. Whilst so doing, a mass of coal, weighing about 8 tons, fell. He was struck by a falling piece, and died two hours later. Inspection and inquiry made.
59	6th February, 5 A.M.	Tirap mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Bhim Singh, Chetri, (*m.*), 19, *Basket-carrier*; Jitman Thapa, (*m.*), 32, *Sirdar.*	Coal	About 150 tons of coal and dirt fell from the side of a quarry and suffocated the two deceased. The deceased Jitman, who was the Sirdar in charge, appears to have been asleep.
60	20th February, 5-30 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Bipan Kora, (*m.*), 28, *Coal-cutter.*	Coal	Deceased was cutting the floor of a gallery, when a piece of side coal, 3′ 3″ × 2′ 0″ × 0′ 9″, fell, from a distance of 24 feet, on to his head. He died shortly afterwards. Inspection and inquiry made.
61	21st February, 1 P.M.	Bheraghat mine, Katni P. O., Central Provinces.	Katni Cement and Industrial Co., Ld.	Guja Bharia, (*m.*), 30, *Miner.*	Soap-stone	Deceased was working at the bottom of a soapstone pit, 34 feet in depth, when a piece of marble, measuring 2′ 6″ × 1′ × 1′, fell from a height of 8 feet upon him, killing him instantly. His two companions escaped with a few superficial wounds. Inspection and inquiry made.
62	22nd February, 11 A.M.	Hermyingyi mine, Tavoy P. O, Burma.	Hermyingyi Mining Co., Ld.	Chang Pong, (*m.*), 42, *Tributor.*	Wolfram	Deceased, against orders, undercut the foot wall with the result that two tons of rock fell, from a height of 5 feet, on to his head and killed him instantly.
63	28th February, 11 A.M.	Kurkend mine, Kurkend P. O., Bihar and Orissa.	Motiram Coal Co.	Hiraman Barhi, (*m.*), 45, *Platelayer's labourer.*	Coal	Deceased was one of a gang of five platelayers, engaged in repairing the line on a dip haulage road. He was struck down by a mass of coal, weighing about 6 cwts, which fell from a "slip" in the side of a pillar at a height of 12 feet. He sustained injuries to which he succumbed within a few hours. Inspection and inquiry made.
64	22nd March, 3 P.M.	Padauk mine, Tavoy P. O., Burma.	A. S. Mohomed	Loung Sam, (*m.*), 23, *Coolie.*	Wolfram	About 150 cubic feet of earth, loosened by heavy rain, fell on deceased, from a height of 10 feet and suffocated him.
65	23rd March, 4-30 P.M.	Pagaye mine, Tavoy P. O., Burma.	Rangoon Mining Co., Ld.	Ah Pein, (*m.*), 35, *Tributor.*	Wolfram	Deceased, contrary to orders, started to dig in a tunnel. A slab of schist, weighing about 2 tons, fell from the side and killed him outright.
66	29th March, 10-30 A.M.	Ramagiri mine, Morriston P. O., Madras.	Anantapur Goldfields Ld.	Boriati, (*m.*), 22, *Underground Mistry.*	Gold	While some old ore stuff was being turned over in a trench 5 feet wide and 8 feet deep, about 1 ton of the stuff fell upon deceased. In stepping back he slipped and in consequence his body was covered by the stuff, causing severe internal injuries, from which he died.
67	5th April, 11 A.M.	Alkusa and Kiska mine, Kusunda P. O., Bihar and Orissa.	Kanga & Co.	Palu Ghatwarin, (*f.*), 18, *Coal-carrier.*	Coal	The husband of deceased was standing on a barrel engaged in taking down overhanging coal from a pillar 13 feet high. A mass of coal, 8′ × 3′ 3″ × 3′ thick, weighing nearly 2 tons, fell sooner than he expected. Deceased, who carried coal for her husband, was struck down and killed instantaneously and her husband was slightly injured by falling off the barrel. Inspection and inquiry made.
68	5th April, 11-10 A.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.,	Rakhal Mullick, (*m.*), 35, *Coal-carrier.*	Coal	A piece of side coal was being pulled over from a "slip" on the side of a pillar in course of extraction. When the coal fell over it knocked out a prop 25 feet long, which struck deceased, causing severe injuries to the head from which he died almost immediately. Inspection and inquiry made.
69	11th April, 3 P.M.	Hpaungdaw mine, Tavoy P. O., Burma.	Steel Bros. & Co., Ld.	Fo Thong, (*m.*), 29, *Tributor.*	Wolfram	Deceased was instructed to take down the side of an open cut but did not do so. A fall of side occurred, fracturing his neck and killing him instantly.

Fatal Accidents, 1917.—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*b*) **Falls of side**—*contd.*			
70	28th April, 11 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Wong Hing, (*m.*), 45, *Dump Picker.*	Wolfram	While attempting to steal ore from an adit which was not being worked, he was buried by a fall of earth from the side of a winze and died eight days afterwards.
71	4th May, 10 A.M.	Sonardih mine, Katrasgarh P. O., Bihar and Orissa.	G. D. Bhattacharji and A. C. Ghosh.	Jugal Bhuiya, (*m.*), 30, *Coal-cutter*; Nanda Lal Bhuiya, (*m.*), 3, *Coal-carrier.*	Coal	The seam is in two sections, separated by a band of stone, 1 foot thick. The two deceased persons entered a fenced gallery and commenced cutting side coal beneath a piece of the middle stone which was overhanging and unsafe. A mass of the stone, measuring 6′ × 4′ × 1′, fell upon them, killing them instantly. Inspection and inquiry made.
72	22nd May, 12-30 P.M.	South Kustore mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Ghomo Garaini, (*f.*), 28, *Coal-carrier.*	Coal	Deceased was standing close to her husband, who was pulling down side coal with a crowbar. A wedge shaped mass of coal, measuring 5′ 0″ × 2′ 9″ × 1′ 0″, broke away along a "slip" and fell upon her. She sustained severe internal injuries and died almost immediately. Inspection and inquiry made.
73	2nd June, 1-30 A.M.	Kurkend mine, Kurkend P. O., Bihar and Orissa.	Motiram Coal Co.	Amrit Dhobi, (*m.*), 54; Lolon Dhobi, (*m.*), 23, *Coal-carriers.*	Coal	A mass of coal, measuring 14′ × 3′ × 5′, fell from the side of a pillar in the course of extraction. The two deceased, who were loading coal beneath it, were buried under the fall and sustained serious injuries from which they died almost immediately. Inspection and inquiry made.
74	5th June, 9 P.M.	Hpaungdaw mine, Tavoy P. O., Burma.	Steel Bros. & Co., Ld.	Chu Ho, (*m.*), 35, *Tributor.*	Wolfram	Deceased was working at night without a light and contrary to orders, at the foot of a 20 feet bank. A portion of the side of the bank, measuring 20′ × 15′ × 2′, which had previously been loosened by water, fell upon him, dislocating his neck and killing him instantly.
75	13th June, 10-30 A.M.	Tatiparthi mine, Sangam P. O., Madras.	Yerabaka Venkatarami Reddi.	Ameri Penchelugadu, (*m.*), 16, *Coolie.*	Mica	Deceased was struck on the head by a fall of earth, 3′ × 3′ × 1′ 6″, which fell from the side of an excavation. He was killed instantly.
76	17th June, 3 P.M.	Bandarehua mine, Domchanch P. O., Bihar and Orissa.	F. F. Chrestien & Co., Ld.	Khelowa Hazam, (*m.*), 20, *Mud lifter.*	Mica	Deceased was suffocated by a fall of mud from the side of a "hanging wall" of an incline.
77	21st July, 9 A.M.	Widnes Mine, Tavoy P. O., Burma.	High Speed Steel Alloys, Ld.	Tha Chine, (*m.*), 20, *Tributor.*	Wolfram	Whilst deceased was working in a sluicing open-cut, about 1½ tons of earth fell from the side, at height of about 12 feet, bringing two or three logs of timber with it. Deceased was buried under the fall, and was found to be dead when extricated.

78	1st August, 11-30 A.M.	Kusunda mine, Kusunda P. O., Bihar and Orissa.	Kusunda and Nayadih Collieries, Ld.	Singrai Majhi, (*m.*), 38, *Coal-cutter.*	Coal	Deceased, in spite of being warned not to do so, went underneath overhanging side coal which was being got down. A piece of coal, measuring 6′ 0″ ×1′ 8″×0′ 10″, fell, without any warning, from a height of 12 feet, and struck him. He sustained a fracture of both legs and the spine and died 22½ hours later. Inspection and inquiry made.
79	23rd August, 10 A.M.	New Suratar mine, Jharia P. O., Bihar and Orissa.	New Suratar Coal Co., Ld.	Jhingu Chamar, (*m.*), 30, *Coal-cutter.*	Coal	Whilst engaged in dressing down loose coal from the corner of a pillar, after blasting, deceased was killed on the spot by the fall of some 4 tons of coal, from a height of 6 feet. Another coal-cutter, who was holding a light for deceased at the time, was slightly injured. Inspection and inquiry made.
80	29th August, 1 A.M.	Central Kurkend mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ld.	Nankoo Chamar, Belaspuri, (*m.*), 25, *Coal-cutter.*	Coal	Four coal-cutters were engaged in the extraction at a portion of a pillar in a coal seam 12 feet thick. They undercut the pillar until a slab of coal, 12′×7′×6″ to 2′×6″ thick, toppled over and fell upon deceased, killing him on the spot.
81	29th August, 4 P.M.	Benahir mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Dwarka Lode, (*m.*), 40, *Coal-cutter.*	Coal	A shot had been fired with the object of bringing down overhanging coal from the corner of a pillar, 23 feet in height. After some time had elapsed deceased returned to the place, and, whilst examining it, was killed on the spot by the fall of some 12 tons of coal. Inspection and inquiry made.
82	4th September, Noon.	Bansdeopur mine, Kusunda P. O., Bihar and Orissa.	Bansdeopur Coal Co., Ld.	Suku Manjhi, (*m.*), 18 ; Dhiba Manjhi, (*m.*), 30, *Coal-cutters.*	Coal	Whilst deceased were engaged in the extraction of a pillar of coal, 24 feet in height, a mass of coal, weighing about 6 tons, fell from "slips" about 12 feet above. Dhiba was buried by the coal and killed on the spot. Suku, and two others, in attempting to avoid the falling coal, fell through a stone cutting into a lower seam 30 feet below. Suku was killed, the other two persons were severely injured. Shortly after the first fall, a second fall of some 30 tons of coal, took place. Inspection and inquiry made. (*See Report, page 9.*)
83	14th September, 1-30 P.M.	East Kurkend mine, Kusunda P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Jasodar Beldarin (*f.*), 40 ; Bandia Beldarin, (*f*) 30 ; *Dust Carriers* ; Etwari Beldarin, (*f.*), 2.	Coal	Deceased were burried under a mass of subsoil, which slipped from the vertical side of a quarry. They were suffocated before they could be extricated. Inspection and inquiry made.
84	26th September, 2-30 P. M.	Noonoodih mine, Jharia P. O., Bihar and Orissa.	Bengal Iron and Steel Co., Ld.	Halodar Kamar (*m.*), 40. *Coal-cutter.*	Coal	Deceased was cutting coal on the face of a pillar in the course of extraction, when a piece of coal, measuring about 1′×0″×1′×9″, fell over from a height of 11 feet, and struck him on the head, fracturing his skull. Death was instantaneous.
85	3rd October, 1 P.M.	Kapasara No. 1 Plot mine, Mugma P. O., Bihar and Orissa.	Abdul Karim and Bros.	Rajani Bauri, (*m.*), 26, *Miner.*	Coal	Deceased, during the absence of the sirdar, passed through a fence to rob some overhanging coal in a gallery, when the coal, which was triangular in shape and measured 8′ 0″×3′ 8″×6′ 0″ thick, fell upon him, from a height of 11′ 6″, and killed him outright. Inspection and inquiry made.
86	9th October, 2-30 A.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Loopsi Manjhian, (*f.*), 18, *Coal-carrier.*	Coal	Deceased was filling a basket of coal whilst a miner was robbing coal from the side of a pillar. A mass of side coal, weighing about 2 tons, fell over upon them both ; deceased was killed instantaneously, and the miner sustained a compound fracture of both legs. Inspection and inquiry made.
87	11th October, 2-30 P.M.	Sijua mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ld.	Kalla Khorani, (*f.*), 35, *Coal-carrier.*	Coal	Deceased was found lying under a fall in a disused gallery, in which a mass of side coal, measuring 15′×20′×9′ 6″, had fallen over from a "slip" from the side of a pillar. There was evidence that the "slip" had been recently undercut, but it could not be ascertained by whom it had been undercut. The gallery was fenced. Inspection and inquiry made.

Fatal Accidents, 1917—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*concld.*			
			(*b*) Falls of side—*concld.*			
88	13th October, 4-30 A.M.	Srimar mine, Kalipahari P. O., Bengal.	Lodna Colliery Co., Ld.	Suku Manjhi, (*m.*), 35, *Miner.*	Coal	Deceased started to undercut some overhanging coal, when a piece of the latter, measuring 4′×1′3″×3″ thick, fell from a height of 2′×6″, upon his chest and arm. He sustained cuts and bruises on the chest and a fractured arm. He was progressing favourably when his relatives removed the dressings and applied native dressings. He died of tetanus two days later. Inspection and inquiry made.
89	1st November, 10 P.M.	Huntodih mine, Mohoda P. O., Bihar and Orissa.	Huntodih Coal Co., Ld.	Wazir Meah (*m.*), 40, *Coal-cutter.*	Coal	Deceased was one of four coal-cutters engaged in extracting a pillar of coal, 7 feet in height. He undercut the corner of the pillar to a depth of 3′ 6″, and was killed on the spot by a mass of coal, weighing 30 cwts., which fell upon him from a "slip." Inspection and inquiry made.
90	27th November, 7-30 A.M.	Hapungdaw mine, Tavoy P. O., Burma.	Steel Bros. & Co., Ld.	Ah Bu, (*m.*), 23, *Tributor.*	Wolfram	Deceased was drilling in an open cut working, when part of the side, loosened by blasting and not properly barred down, fell on him, fracturing his skull and killing him instantly.
91	4th December, 4-30 P.M.	Lakorka mine, Katrasgarh P. O., Bihar and Orissa.	Lakorka Coal Co., Ld.	Siram Manjhi, (*m.*), 35; Jimla Manjhi, (*m.*) 25, *Coal-cutters.*	Coal	Whilst four coal-cutters were engaged in undercutting a pillar of coal, in a seam 11 feet thick, a mass of overhanging coal, 5′ 6″×2×1′×9″, fell from a height of 9 feet. Two of them were killed and a third seriously injured. Inspection and inquiry made.
92	16th December 10-15 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Kay Hmun, (*m.*), 25, *Miner.*	Wolfram	Deceased had been ordered to set timber in an open cut, but omitted to do so. He was killed by a fall of earth, which fell from the side, at a height of 15 feet.
93	25th December, 4 A.M.	Kusmai No. 1 mine, Ganwan P. O., Bihar and Orissa.	F. F. Chrestien & Co., Ld.	Kehar Rai, (*m.*), 30, *Driller.*	Mica	While deceased was extracting a piece of mica with a chisel, he was struck by a piece of pegmatite, measuring 3′×2′ 6″×2′, which fell from the side of a drive. He died the following day. Another person was injured.
			IN SHAFTS—FALLING INTO THE SHAFT FROM THE SURFACE—(*2 deaths*).			
94	27th March, 9 A.M.	Khas Jinagora mine, Jharia P. O., Bihar and Orissa.	Gova Petha & Co.	Mohar Teli, (*m.*), 40, *Basket Carrier.*	Coal	Deceased, whilst carrying away a basket loaded with stone from the top of a sinking pit, 102 feet deep, overbalanced and fell into the shaft. He was killed instantly. Inspection and inquiry made.
95	22nd April, 2 P.M.	Kessabganj mine, Kalipahari P. O., Bengal.	Ram Bilas Marwari.	Mukhan Bawari, (*m.*), 35, *Sirdar.*	Coal	Deceased was laying planks over the mouth of a shaft, containing water 60 feet deep, when he slipped and fell into the shaft. In falling his head struck a girder and apparently stunned him, for he sunk at once, and his body was not recovered till the following day. Inspection and inquiry made.

IN SHAFTS—FALLING FROM PART OF THE WAY DOWN—(*8 deaths.*)

96	19th February, 5 A.M.	Tandaya mine. Kodarma P. O., Bihar and Orissa.	Messrs. Johor Mull and Sunder Mull.	Sobhi Goala, (*m.*), 35, *Coolie.*	Mica . .	Deceased was climbing down a shaft, 52 feet deep, and, when he had reached a depth of 7 feet from the surface, he slipped and fell to the bottom of the shaft. He died on his way to hospital.
97	2nd March, 4-30 P.M.	Deoli mine, Deshergarh P. O., Bihar and Orissa.	Deoli Coal Co., Ld. . .	Sukoo Manjhi, (*m.*), 22, *Miner.*	Coal . .	Deceased was being lowered in a shaft 10 feet in diameter and 80 feet deep by means of eight woman and a manila rope, passed over a pulley in the headgear, when he released his hold on the rope and fell, a distance of about 30 feet, to the shaft bottom. He sustained a compound fracture of the left leg, from the effects of which he died five days later. He was riding on the winding hook at the time. After the accident orders were given for a more secure seat to be provided. Inspection and inquiry made.
98	19th May, 2-30 P.M.	North Anantapur mine, Morriston P. O., Madras.	North Anantapur Gold Mines, Ld.	Srerangam, (*m.*), 27, *Drilling-machine coolie.*	Gold . .	Deceased was climbing down the ladder way of a shaft without a light. For some reason, which could not be ascertained, he got into the "skip" road at the 300 feet level and fell to the 650 feet level. He was killed outright.
99	22nd May, 1 P.M.	South Jibutil mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Maridoss, (*m.*), 32, *Timber coolie.*	Gold . .	Whilst loading planks into the "skip" at the 280 feet level he fell down the shaft to the 1,000 feet level, and was killed instantly.
100	24th June, 5-30 P.M.	Khas Jharia mine, Jharia P. O., Bihar and Orissa.	Khora Ramji . .	Ranglal Theldar, (*m.*), 30, *Pump khalasi.*	Coal . .	Deceased was being raised in a bucket in a sinking shaft, when the edge of the bucket came in contact with a clamp holding three pipes in column. A hook of the bucket broke and deceased was thrown out and fell into the sump 40 feet below. He sustained only an abrasion of the left leg, but blood poisoning supervened and he died nine days later. The clearance, which was only two feet, was insufficient. Inspection and inquiry made.
101	30th October, 10 P.M.	South Jibutil mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Thippa Boviah, (*m.*), 34, *Stuff coolie.*	Gold . .	Deceased was climbing up a ladder in a 'stope' and for some unknown reason slipped to the bottom. His chin struck the ground and he was killed outright.
102	20th November, 11 A.M.	North Anantapur mine, Morriston P. O., Madras.	North Anantapur Gold Mines, Ld.	Yamoonah, (*m.*), 30, *Timber coolie.*	Gold . .	Deceased was standing on a sollar fixed in a shaft, at a depth of 170 feet. He was engaged on repairs to the shaft. One of the planks comprising the sollar appears to have broken and he fell through the opening. He was picked up dead at a depth of 580 feet. Since the accident instructions have been given that these planks shall be nailed in future.
103	27th December, 12-30 P.M.	Sudamdih mine, Bhujudih P. O. Bihar and Orissa.	Empire Coal Co., Ld. .	Beni Singh, (*m.*), 45, *Head Sinking Sirdar.*	Coal . .	A loaded bucket at the bottom of a sinking shaft, 340 feet deep, was about to be raised to the surface. Whilst steadying the bucket deceased caught hold of the top of the bucket and was raised a distance of a few feet up the shaft. On letting go he fell upon the end of a steel drill, in a shot hole which was under process of drilling. He was impaled upon the drill, and died two hours later. Inspection and inquiry made.

IN SHAFTS—THINGS FALLING FROM THE SURFACE—(*1 death*).

104	29th September, 9 A.M.	Sibpur mine, Charanpur P. O., Bengal.	Katras Jharia Coal Co., Ld.	Gobinda Bauri, (*m.*), 26, *Onsetter.*	Coal . .	A tub had jammed in the cage at the shaft bottom and deceased, who was the onsetter, was crossing to release it, when a piece of coal fell from a loaded tub at the shaft top, and struck deceased, fracturing his skull. He died in hospital 55 days later. Inspection and inquiry made. (*See Report, page 9.*)

Fatal Accidents, 1917—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			IN SHAFTS—THINGS FALLING FROM PART OF THE WAY DOWN—(*2 deaths*)			
105	3rd August, 12-30 P.M.	Sitalpur mine, Deshargarh P. O., Bengal.	Bengal Coal Co., Ld.	Dakhal Singh, (*m.*), 22, *Sinker.*	Coal	Deepening an existing shaft was in progress, when a water bucket, on being raised, collided with one side of the sinking door frame situated at the original shaft bottom, bounded across to the other side and finally struck a piece of sheeting, which became dislodged and fell to the bottom of the sinking shaft. Deceased was struck and killed outright. Inspection and inquiry made.
106	13th October, 9 P.M.	Jibutil mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Nanja, (*m.*), 30, *Hand-jumper coolie.*	Gold	Whilst deceased was drilling in the 'sink', 264 feet from the surface, a few stones fell from the side of the shaft, one of them struck deceased and fractured his skull, killing him outright. The place from which the stones fell could not be discovered.
			IN SHAFTS—MISCELLANEOUS.—(*3 deaths.*)			
107	17th April, 11 A.M.	Kendwadih mine, Jamadoba P. O., Bihar and Orissa.	Hariladih Coal Co., Ld.	Hera Gareri, (*m.*), 17, *Pump khalasi.*	Coal	Deceased walked into the sump of a shaft when the cages were running. He was struck by the descending cage, and sustained a fracture of the skull. Death was instantaneous. Inspection and inquiry made.
108	29th June, 11 A.M.	Chandametta mine, Pench P. O., Central Provinces.	Pench Valley Co., Ld.	Mulla Gond, (*m.*), 52, *Timber man's coolie.*	Coal	While the cages were in motion, deceased attempted to cross the bottom of the shaft, although warned by the onsetter not to do so. He was caught by the descending cage and died eleven days afterwards. There was a travelling road which he could have used.
109	9th July, 9-15 A.M.	Ena mine, Jharia P. O., Bihar and Orissa.	North West Coal Co., Ld.	Mali Bauri, (*m.*), 60, *Oiler.*	Coal	Deceased walked into the sump and was crushed by the descending cage. He sustained a fractured spine and died two hours later. Inspection and inquiry made.
			SUFFOCATION BY GASES—(*3 deaths.*)			
110	17th September, 1 P.M.	Davispur mine, Duki P.O., Baluchistan.	Abdulla Asgaralli & Co.	Para Din, (*m.*) 32; Naik Mohomed, (*m.*) 33, *Miners.*	Coal	The two deceased entered a disused mine and were suffocated by poisonous gas. Inspection and inquiry made.
111	18th October, 11 A.M.	Ledo Valley, East mine, Margherita P.O., Assam.	Assam Railways and Trading Co., Ld.	Kinoo Munda, (*m.*), 30, "*Opening*" *man.*	Coal	While putting up air pipes to remove 'black damp' near an old stopping, deceased was overcome by the 'black damp' and died before he could be rescued. Three other coolies, whom the European foreman sent into the place, one by one, to rescue deceased, were also affected but recovered.
			BY EXPLOSIVE.—(*9 deaths*).			
112	30th March, 1-30 P.M.	Barkui mine, Pench P.O., Central Provinces.	Pench Valley Coal Co., Ld.	Mangru Ahir, (*m.*), 30; Kiraih Lohar, (*m.*), 22, *Miners.*	Coal	The two deceased were returning to a shot which had hung fire, when it exploded and they received injuries from the effects of which they died four days' later. Inspection and inquiry made.

113	24th May, 4 P.M.	Kalichedu mine, Podalakur P.O., Madras.	F. F. Chrestien & Co., Ld.	Gengi Ventegadu, (*m.*), 15, *Miner.*	Mica	A miner and the deceased boy, neither of whom were authorized to fire shots, obtained dynamite and a detonator from the person in charge of explosives and fired a shot in a tunnel. From some cause or other there was a premature explosion, killing deceased and severely injuring the miner. Inspection and inquiry made.
114	31st May, 12-30 A.M.	North Dobari mine, Jharia P.O., Bihar and Orissa.	Sahana Coal Co.	Kali Charan Beldar, (*m.*) 25, *Coal-cutter.*	Coal	Deceased was struck by a piece of rock, about 10 lbs. in weight, which was flung into the air during blasting operations in an adjacent quarry. He sustained serious injuries to his left leg and died eighteen hours later. Inspection and injury made.
115	15th July, 2-30 A.M.	Jatachappa mine, Pench P.O., Central Provinces.	Upper Pench Coal Co., Ld.	Baban Pinjara, (*m.*), 22, *Pump driver.*	Coal	Deceased was attending to a steam pump close to a level where shot firing was being carried on. Five shots had been fired and, thinking that the shot firing was over, he approached the place. As he did so a sixth shot exploded and injured him. He died five days afterwards. Eight shots altogether were fired. The Manager states that ample warning was given by the shot firer.
116	26th August, 3-30 A.M.	Ramagiri mine, Morriston P.O., Madras.	Anantapur Gold Fields, Ld.	Mankarai Thaygan, (*m.*) 30, *Blaster.*	Gold	Deceased was lighting shot holes in the bottom of a shaft when the first hole exploded before he had finished lighting. He died from shock caused by the injuries which he received. He is stated to have been a competent blaster but presumably misjudged the time.
117	22nd September, 7 A.M.	Alkusa South mine, Kusunda P.O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Nazam, (*m.*) 20; Maslim (*m.*), 15, *Country powder makers.*	Coal	The two deceased, who were country powder makers, spread about 50 lbs. of country powder on the top of a Lancashire boiler to dry during the night. In the morning they heaped the powder together preparatory to removal, and were sitting down on top of the boiler, when the powder was in some way ignited, one of them died three days and another five days later as a result of their injuries. Two other men were also burnt but recovered. Inspection and inquiry made.
118	4th October, 1-15 P.M.	Sodepur (9 & 10) Pits mine, Sitarampur P.O., Bengal.	Bengal Coal Co., Ld.	Kanai Dosadh, (*m.*), 35, *Stone-cutter.*	Coal	Deceased and another person drilled into an old socket and exploded a cartridge of gelignite that had failed to explode on the occasion of the last shot. Deceased died next day from injuries received and his companion sustained two punctured wounds. Inspection and inquiry made.
			IRRUPTIONS OF WATER OF FALLING INTO WATER (*4 deaths.*)			
119	24th April, Unknown.	Kankani, mine, Bansjora P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Brighanath Singh, (*m.*), 25, *Surveyor's chainman.*	Coal	The body of deceased was found in a boiler-tank containing 5′ 6″ of water. Death was attributed to suffocation by drowning. Inspection and inquiry made.
120	20th June, 4 A.M.	Sundarchak mine, Sundarchak P. O., Bengal.	Shampore Coal Co., Ld.	Chobar Lohar, (*m.*), 37, *Fitter;* Haroo Thakur, (*m.*), 23, *Chaprasi;* Behari Bauri, (*m.*), 27, *Pumpman.*	Coal	While seven men were under ground, an inrush of water from some old water logged workings occurred and the mine was flooded. Three of the men were drowned. Inspection and inquiry made. (*See Report, page 9.*)
			HAULAGE—(*20 deaths*).			
121	12th January, Unknown.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Kalu Sekh, (*m.*), 27, *Gunta-wallah.*	Coal	Deceased appeared from evidence to have been riding on a full set of tubs coming out of the mine and to have been thrown off the set, owing to the derailment of a tub. He then appears to have walked out of the mine and his body was afterwards found on a river bank near the entrance of the mine.

Fatal Accidents, 1917—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
				HAULAGE—(*contd.*)		
122	9th February, 3-30 P.M.	Ledo Valley West mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Parbhu Karmi, (*m.*), 33, *Tub-pusher.*	Coal	Deceased, whilst lowering a loaded tub down a slight grade, allowed the tub to run over his foot. He died in hospital two months later. Inspection and inquiry made.
123	21st February, 10-30 P.M.	Sowardih mine, Bhujudih P. O., Bihar and Orissa.	Sowardih Coal Co., Ld.	Baidyanath Singh, *alias* Bodi Singh, (*m.*), 32, *Tub-checker*; Jugal Mahato, (*m.*), 25, *Hookman.*	Coal	Whilst a train of six loaded tubs was being hauled up a grade of 1 in 2½, five tubs ran wild. Deceased, who were crossing the line 280 feet below, were knocked down and killed. The break away was probably due to a coupling pin not having been pushed home. Inspection and inquiry made.
124	1st March 8-40 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Jongbir Lohar, (*m.*), 28, *Hooker-on.*	Coal	The deceased was working as a hooker-on at the botton of a self-acting incline. He signalled for the loaded tub to be sent down without attaching a hook to the empty tub. The full tub consequently ran wild down the incline, striking deceased at the bottom of the incline, fracturing his skull and killing him outright.
125	11th April, 5 A. M.	Chandrametta mine, Pench P. O., Central Provinces.	Pench Valley Coal Co., Ld.	Shamli Thakur, (*m.*), 50, *Water bailing coolie.*	Coal	Deceased was walking at the inbye end of a haulage road and was struck by some empty tubs, which had run wild. He sustained a compound fracture of the left leg and other injuries and died five and half hours later. Inspection and inquiry made.
126	17th April, midnight.	Shampur mine, Mugma P. O., Bihar and Orissa.	Shampur Coal Co., Ld.	Moti Gorain, (*m.*), 17, *Trolley man.*	Coal	While tramming a loaded tub on a level road, deceased received a flesh wound on his left big toe. Septic poisoning supervened and the toe was amputated. He then refused further medical treatment. Septic poisoning again supervened and he died sixteen days later. Inspection and inquiry made.
127	15th May, 11 P. M.	South Alkusa mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association Ld.	Lakhan Singh, (*m.*), 30, *Tub-runner.*	Coal	Whilst deceased was riding on the last tub of a train of eight loaded tubs, which was running down a grade of 1 in 30, three other tubs broke away from a siding and overtook him. He was crushed between the colliding tubs and sustained a fracture of the skull, to which he succumbed two hours later. Inspection and inquiry made.
128	25th May, 11 A. M.	Angarpatra mine, Katrasgarh P. O., Bihar and Orissa.	Union Coal Co., Ld.	Kirteebas Bauri, (*m.*), 25, *Miner.*	Coal	Deceased, who was walking on the haulage road, was pinned against the side by a runaway tub, which became derailed. He sustained a compound fracture of the right-leg at the thigh and died three hours later. Inspection and inquiry made. (*See Report, page 11.*)
129	4th June, 11 A. M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway	Hussaina, (*m.*), 22, *Bellman.*	Coal	Deceased was a bellman employed on a steep haulage road. Owing to a mistake on the part of the Banksman, two trams ran wild down the road and struck deceased. He received injuries which terminated fatally. Inspection and inquiry made.

130	27th June, 5 A. M.	Saltore mine, Dishergarh P. O., Bihar and Orissa.	Saltore Coal Co., Ld.	Bhigoo Ray, (*m.*), 30, *Trolleyman.*	Coal	An empty tub became detached from a set, while being lowered on an engine plane. It was derailed at a junction and in overturning struck deceased. He died from his injuries the next day. Inspection and inquiry made.
131	30th June, 4 P. M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Ram Baran Kurmi, (*m.*), 32, *Line mistry.*	Coal	Deceased was walking out of the mine, up the haulage incline, behind a set of six tubs, when the rope broke and the tubs ran back upon him. He was killed instantly. Inspection and inquiry made.
132	17th July, 5-45 P.M.	Dumarkunda mine, Barakar P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Fuchu Bawri, (*m*), 24, *Underground trammer.*	Coal	Deceased, in attempting to mount a set of tubs in motion, fell under the leading tub. He was dragged along the ground, and received injuries which proved fatal the following day. Inspection and inquiry made.
133	29th August, 11 P.M.	Nayadih and North Kusunda mine, Kusunda P.O., Bihar and Orissa.	Kusunda and Nayadih Colleries, Ld.	Fagu Meah, (*m.*), 15, *"Run" rider.*	Coal	At this colliery it is the practice for an attendant to accompany the trains of tubs as they travel to and from the underground workings. Such attendant is accustomed to sit on the frame of the tub to which the hauling rope is attached. Whilst so employed, deceased was run over and sustained injuries to which he succumbed 36 hours later. Inspection and inquiry made.
134	13th September, 3 P.M.	Chandametta mine, Pench P.O., Central Provinces.	Pench Valley Coal Co., Ld.	Anwar Gond, (*m.*), 52, *Tub puller.*	Coal	Deceased, with another man, was pushing a full tub along a level. They suddenly pulled the tub up and were run into by another tub which was being pushed by two other persons, deceased was crushed between the tubs and received injuries from which he died three days later.
135	15th September, midnight.	Bansdeopur mine, Kusunda P.O., Bihar and Orissa.	Bansdeopur Coal Co, Ld.	Kodan Meah, (*m*), 30, *Coolie.*	Coal	Deceased was walking out of an incline along the haulage plane, when a set of 5 tubs of ashes was being lowered. A coupling broke and the "set" ran away. Deceased was struck down before he could escape and sustained serious injuries to the skull. He died on the way to hospital two hours later. Inspection and inquiry made.
136	18th September, 4-50 P.M.	Sitapur mine, Ramakona P. O., Central Provinces.	Indian Manganese Co., Ld.	Jaiwanti Maharani, (*f*) 16, *Coolie.*	Manganese	As an empty tub was being lowered into an excavation, several coils of the rope slipped over the cheek of the drum. After this slack rope had paid out the sudden stress, when the tub was pulled up, broke the rope, the tub then ran wild down the incline, striking deceased and killing her. The drum has since been fitted with higher cheeks.
137	21st September, 5-30 P.M.	Jogta mine, Sijua P. O., Bihar and Orissa.	Agabeg Bros.	Gadadhar Biswas, (*m*), 22, *Contractor's Sircar.*	Coal	Deceased was assisting the trolley men to lift a derailed tub of coal on to the line, when the tub ran a short distance backwards and a wheel passed over his foot. He sustained a compound fracture of the small bones of the foot, gangrene developed and he died in hospital two and a half days later. Inspection and inquiry made.
138	11th December, 9 P.M.	Sijua mine, Sijua P. O., Bihar and Orissa.	Sijua Coal Co., Ld.	Girni Meah, (*m*), 30, *Hookman.*	Coal	Whilst a train of tubs was being lowered on a dip haulage slope, a key fell out of one of the cross heads of the haulage engine and the engine got out of control. Deceased appears to have been near the crossing at one of the landing places, ready to assist the tubs in rounding the curve. He was crushed against the side of the road by the tubs and killed on the spot. Inspection and inquiry made.
139	26th December, 9 P.M.	Burra-Dhemo mine, Sitarampur P. O., Bengal.	Burra-Dhemo Coal Co., Ld.	Sreemati Mejbian, (*f.*), 16, *Coal-carrier.*	Coal	Deceased was travelling on a haulage road whilst the rope was in motion. In attempting to cross the road to seek the shelter of a manhole, she was knocked down by the set. She received injuries which terminated fatally 32 hours later. Inspection and inquiry made.

Fatal Accidents, 1917—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			SUNDRIES UNDERGROUND—(*15 deaths.*)			
140	9th February, 6 P.M.	Kendwadih mine, (Kurkend Section), Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Domni Mejhian, (*f.*), 20, *Coal-carrier.*	Coal	Deceased was standing looking on whilst two miners, standing on stools, were cutting roof coal. A piece of coal larger than usual was brought down, and being startled, she ran back, and collided with the corner of a pillar of coal. She sustained a rupture of the spleen and died about two hours later. Inspection and inquiry made.
141	13th March, 5-30 P.M.	Bansjora mine, Bansjora P. O., Bihar and Orissa.	Bansjora Coal Co., Ld.	Tallia Mussalmanin (*f.*), 32, *Coal-carrier.*	Coal	Deceased was carrying a piece coal, weighing about 40 lbs. out of the mine. She slipped, lost her balance and fell heavily on her face. She sustained serious injuries on the head and died of shock almost instantaneously. Inspection and inquiry made.
142	10th April, 6 P.M.	Titulmuri mine, Sijua P. O., Bihar and Orissa.	Titulmuri Collieries, Ld.	Budhan Doshad, (*m.*), 16, *Bailing coolie.*	Coal	Deceased fell a distance of 17 feet from a level tramline into a dip gallery in which floor coal had been extracted. He sustained a fractured skull and died three and half hours later. Inspection and inquiry made.
143	27th April, 8-15 A.M.	Sodepur mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Abhiram Bauri, (*m.*), 22, *Onsetter.*	Coal	Deceased was following his employment as an onsetter, when, from some unknown cause, he fell and sustained a fractured skull, from the effects of which he died shortly afterwards. Inspection and inquiry made.
144	22nd May, 4 P.M.	Sitalpur mine, Dishergarh P. O., Bengal.	Bengal Coal Co., Ld.	Sewsaran Gope, (*m.*), 50, *Fitter.*	Coal	Preparatory to repairing a leaking 6" steam pipe joint a prop was set under the pipe to support it. While deceased was delivering a final blow to the prop, the joint failed completely and he received the full force of the steam. He was scalded all over the body and succumbed about two hours later. Inspection and inquiry made. (*See Report, page 11.*)
145	31st May, 8 A.M.	Barari mine (Jealgora Section), Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Sukur Meah, (*m.*), 45, *Coal-cutter.*	Coal	Deceased, contrary to orders, went up into an "opening" in which a mass of dropped roof coal was lying. Several large pieces of coal rolled down on top of him, killing him, instantly. Inspection and inquiry made.
146	4th July, 9-10 A.M.	Tikuri mine, Katni P. O., Central Provinces.	Katni Cement and Industrial Co., Ld.	Pir Mahomed Khan, (*m.*), 32, *Pump khalasi.*	Limestone	Deceased was killed by an electric shock whilst starting a motor for pumping water in a quarry.
147	27th July, 0-30 A.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway	Raja Singh, (*m.*), 26, *Tram Munshi.*	Coal	Deceased was struck by a prop which fell down a steep haulage road, from the tub in which it was being lowered into the mine. He sustained a fracture of the skull. He died shortly afterwards. Inspection and inquiry made.
148	30th July, 1-30 A.M.	Dishergarh mine, Dishergarh P. O., Bengal.	Equitable Coal Co. Ld.	Debi Singh, (*m.*), 55, *Coolie.*	Coal	Deceased was sitting on a mass of cast iron pipes in a damp situation, when a bump came over the workings and dislodged a prop carrying a lead sheathed cable. The cable came in contact with him and he was electrocuted on the

							spot. It was found that there was a "dead earth" on the cable due to damage caused by the fall of the prop.
149	9th August, 5 A.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway	Rozali, (*m.*), *Carpenter's Coolie.*	24,	Coal	Deceased was about to get into a tram standing at a landing on a steep haulage road, when a piece of stone was heard falling down the road. In trying to avoid this danger, he slipped and fell 150 feet down the incline. Inspection and inquiry made.
150	7th September, 6 P.M.	Central Kurkend mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ld.	Juggernath Turi, (*m.*), *Coal-cutter.*	28,	Coal	Deceased went inside a fenced goaf to get coal. Hearing the roof weighting he ran into safety and accidentally struck his left leg with the point of his pick, behind the knee, severing an artery. He died 10½ hours later from heart failure due to hæmorrage. Inspection and inquiry made.
151	14th September, 3P .M.	Kajora mine, Ondal P. O., Bengal.	P. E. Guzdar & Co.	Alijan Meah, (*m.*), *Haulage Engineman.*	32,	Coal	Deceased's clothes caught fire at a lamp in an underground engine house. He died from his injuries twelve hours later. Inspection and inquiry made.
152	21st October, 3 P.M.	Shampur mine, Mugma P. O., Bihar and Orissa.	Shampur Coal Co., Ld.	Manmatho Nath Mukherjee, (*m.*), *Fitter.*	23,	Coal	Deceased went alone to repair defective joints in a steam pipe, situated in a gallery, where a temperature of 112° Farh. was recorded a few days afterwards, the air being found very humid. His body was found the following day close to the pipe line. It was surmised that he was overcome by the heat and died of heat apoplexy. Inspection and inquiry made.
153	2nd December, 7-30 P.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Sir Kasturchand Daga and the Hon'ble Mr. M. B. Dadabhoy, C.I.E	Sittaram, (*m.*), *Mate.*	60,	Coal	While walking from the bottom of the shaft towards the underground stores, deceased's clothing caught fire from the open light which he was carrying. He died sixteen days later from the effects of the burns.
154	10th December, 3-30 P.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway.	Lajwar, (*m.*), *Bankman.*	33,	Coal	Deceased and another man were railing a tub in a steep incline, when deceased slipped and fell a distance of about 200 feet and was killed.
			SURFACE MACHINERY—(*3 deaths*).				
155	15th January, Noon.	Dhobidih mine, Giridih P. O., Bihar and Orissa.	Bengal Giridih Coal Co., Ld.	Bikoo Ghatwar, (*m.*), *Surface coolie.*	26,	Coal	Deceased was excavating some ground behind a newly erected haulage engine, which was being put under steam. The flywheel of the engine burst, and one of the fragments struck him on the back. He sustained a fractured spine and died four hours later. Inspection and inquiry made.
156	19th January, 3-30 P.M.	Sodepur mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Debu Bunr, (*m.*), *Engine driver.*	25,	Coal	Deceased was in charge of machinery, driving a screening plant. His clothes were caught by a revolving shaft, and he was crushed between the shaft and the floor of the Engine-house. He was killed on the spot. Inspection and inquiry made.
157	23rd November, 3-30 P.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway	Minkoo, (*m.*), *Dust carrier.*	14,	Coal	Deceased was drawn into the machinery of a pressed fuel factory at the mine and was killed instantly.. Apparently his clothes were caught in a wheel shaft.
			SURFACE RAILWAYS AND TRAMWAYS—(*5 deaths.*)				
158	21st January, 6-30 A.M.	Kusunda Nyadih, (Nyadih Section), mine. Kusunda P. O., Bihar and Orissa.	Kusunda Nyadih Collieries, Ld.	Bhatu Mia, (*m.*), *Hookman.*	18,	Coal	Deceased was riding on the front of a locomotive, when, due to a cause not definitely ascertained, he fell off in front of the engine and was killed outright. Inspection and inquiry made.
159	11th April, 4 P.M.	Rajhara mine Rajhara P O., Bihar and Orissa.	Bengal Coal Co., Ld.	Peari Noonia, (*m.*), *Coal carrier.*	12,	Coal	Deceased was accidentally run over by a locomotive on the colliery tram line and killed.

Fatal Accidents, 1917—*contd.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			SURFACE RAILWAYS AND TRAMWAYS—(*5 deaths*). —*concld.*			
160	12th May, 6 A.M.	Duia mine, Manharpur P. O., Bihar and Orissa.	Bengal Iron and Steel Co. Ltd.	Fulmoni, (*f.*) 17, *Ore loader.*	Iron . .	Deceased, who was pushing a tub on the mine tram line slipped and was run over by a tub, which was following and which was also being pushed. Her foot was crushed and she died three days afterwards.
161	4th October, 7 P.M.	Lahorka mine, Katrasgarh P. O., Bihar and Orissa.	Lakorka Coal Co., Ld. .	Jagan Meah, *alias* Babra Meah, (*m.*), 24, *Trolleyman.*	Coal . .	Deceased was pushing an empty tub from the loading wharf towards a shaft, when the tub collided with a loaded tub, running uncontrolled in the opposite direction. The tub was derailed and he fell with it over a bridge to the ground, 12 feet below. He was killed on the spot. Inspection and inquiry made.
162	19th December, 1 A.M.	Barkui mine, Pench P. O., Central Provinces.	Pench Valley Coal Co., Ld.	Boora Christian, (*m.*), 20, *Banksman.*	Coal . .	As four tubs were being drawn up an incline on the surface, deceased was noticed to be asleep near the tram line. He was shouted to and apparently got confused, as he walked in the front of the tubs, which ran over him. He died the following day.
			MISCELLANEOUS ON SURFACE.—(*14 deaths*).			
163	1st February, 2-30 P.M.	Sudamdih mine, Bhojudih P.O., Bihar and Orissa	Empire Coal Co., Ld. .	Makunda Mondal, (*m.*), 24, *Engine-khalassie.*	Coal . .	Deceased was engulfed in a subsidence of the surface caused by the sudden collapse of underground workings. Two other persons were slightly injured. Inspection and inquiry made.
164	20th February, 3 P.M.	Hpaungdaw mine, Tavoy P. O., Burma.	Steel Bros. & Co., Ld. .	Rahman, (*m.*), 26, *Tributor.*	Wolfram .	Deceased was picking out ore from a surface outcrop and was killed by a block of earth 4′×2′×2′, which rolled down and pinned him by the head.
165	29th March, 3 30 A. M.	Egane Mine, Tavoy P. O., Burma.	Foucar & Co., Ld. . .	Nazur Ahmed, (*m.*), 35, *Fireman.*	Wolfram .	Deceased was killed by falling into a pump room from a height of twenty feet.
166	5th April, 3 P. M.	Widnes mine, Tavoy P. O., Burma.	High Speed Steel Alloys, Ld.	Lum Pan, (*m.*), 28; Low Kow, (*m.*), 30, *Charcoa burners.*	Wolfram .	The two deceased with another man were forming a chamber in a hill side for burning charcoal. They formed it too wide and it collapsed and killed them. The other man was injured.
167	25th May, 1-30 P. M.	Lutchipur mine, Sitarampur P. O., Bengal.	Lutchipur Coal Company, Ld.	Sha mbhu Bagdi, (*m.*), 33, *Mason.*	Coal . .	Deceased took refuge during a violent storm in an arch-way at the top of a shaft. The arch-way was fenced. The head gear, which was constructed of H. girders and stood 35 feet high on a masonry foundation fifteen feet high and was in course of construction, was blown over. One of the front legs of the head gear entered the arch-way and struck deceased, causing injuries, from the effects of which he died 1½ hours later. A woman, who was also in the arch-way, was injured and her leg was amputated. Inspection and inquiry made.
168	7th July, 3 P. M.	Pachaung mine, Tavoy P. O., Burma.	Wagon Pachaung Wolfram Mines, Ld.	Choi Tin, (*m.*), 27, *Miner.*	Wolfram .	Deceased was opening up a new adit on a steep face and was found dead 40 feet below his working place. The cause of death is unknown.

169	21st August, 10 A. M.	Hlaygadaung mine, Tavoy P. O., Burma.	Hand and Akbar Sha	N. Ah. Foke, (*m.*), 33, *coolie.*	Wolfram	Deceased fell down a steep hill side and received injuries resulting in death.
170	5th September, 1 P. M.	Serampur mine, Giridih P. O., Bihar and Orissa.	E. I. Railway Company	Sadik Meah, (*m.*), 26, *Driver.*	Coal	Deceased was cleaning a boiler and was holding an electric portable lamp in his hands for lighting purposes. One of the lamp holder connections came undone and came in contact with the flame of the lamp, giving him a shock of 250 volts and killing him instantly.
171	2nd October, 12-30 P. M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Chong Fook, (*m.*), 30, *Tribute sluicing coolie.*	Wolfram	A gang was sluicing, when exceptionally heavy rain began to fall. They stopped sluicing and started cleaning up their box. Deceased was raking into the head of the box, stooping down, when the working face gave way and a rock, weighing about a ton, rolled on him. This rock came from a spot about 20 feet from deceased and from a vertical height of 12 feet. The fall of earth, and the fact that deceased did not hear or see the slip coming towards him, was probably due to the abnormal rain that was falling at the moment.
172	11th October, 10-30 A. M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Po Lee, (*m.*), 44, *Tree-feller.*	Wolfram	Deceased was killed by a tree, which was being felled and which fell prematurely.
173	21st October, 10 P. M.	Sudamdih mine, Bhujudih P. O., Bihar and Orissa.	Sudamdih Coal Company, Ld.	Deonath Barhi, (*m.*), 45, *Fireman.*	Coal	Deceased was drowned in a fenced boiler tank. It is presumed that he went there to wash and overbalanced. The tank was 50′×30′×10′ deep, and the temperature of the water was 110° F. Inspection and inquiry made.
174	29th October, 3 P. M.	Pagaye mine, Tavoy P. O., Burma.	Bombay Burma Trading Company, Ld.	Mg. Hpo Hte, (*m.*), 30, *Tributor coolie.*	Wolfram	Deceased went to work in an abandoned working place and was killed by a mass of earth, which fell on him.
175	19th December, 10-30 P. M.	Zimba mine, Tavoy P. O., Burma.	Burma Minerals, Ld.	Ah Tye, (*m.*), 25, *Coolie.*	Wolfram	Deceased was killed by a falling tree, which he with three others were in the act of felling.

Fatal Accidents, 1917—*contd.*

Serial number	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
		DEATHS NOT INCLUDED IN THE STATISTICS.—(*30 deaths*).					
1	26th January, 5-30 P.M.	Bhowra mine, Jamedoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Sukru Mejhian, (*f.*), 22, *Coal carrier.*	Coal .	Not a mining accident.	Deceased committed suicide by jumping into a well. The well was fenced. Inspection and inquiry made.
2	24th January, 3 P.M.	Chasnalla mine, Bhujudih P. O., Bihar and Orissa.	Lodna Colliery Co., Ld. .	Gogla Beldar, (*m.*), 3 .	Coal . .	Not employed	Deceased fell into a tank, 2′ 6″ deep, and was drowned. Inspection and inquiry made.
3	26th January, 2-40 P.M.	Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Lutchipur Coal Co., Ld. .	Ashu Meah, (*m.*), 45, *Miner.*	Coal . .	Not a mining accident.	Deceased was crossing the Railway line, while empty wagons were being brought in. He was knocked down by a moving wagon and died two days afterwards from the injuries received.
4	28th February, 6 P.M.	(Doongree) Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Sadai Kurmi, (*m.*), 18, *Line coolie.*	Coal . .	Not a mining accident.	Deceased, whilst crossing the line between two stationary wagons, with which another moving wagon came into contact, was crushed between the buffers. He sustained serious internal injuries and died about half an hour later. Inspection and inquiry made.
5	30th March, 7-30 A.M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Madhuria Turin, (*f.*), 11.	Coal . .	Not employed	Deceased fell into a well, while drawing water, and was drowned. Inspection and inquiry made.
6	1st April 1917, unknown.	Khona Konda mine or Jotejanaki mine, Toposi P. O., Bengal.	P. K. Chatterjee . .	Unknown, (*f.*), 35.	Coal . .	Not employed	Deceased's body was found floating on the surface of some water standing in an abandoned shaft. The shaft top was unfenced. Inspection and inquiry made.
7	7th April, 3 A.M.	Sonalibad mine, Jharia P. O., Bihar and Orissa.	Ramjash Agarwalla .	Parbatia *alias* Lachmania Mussharin, (*f.*), 20, *Coal carrier.*	Coal . .	Not a mining accident.	Deceased was found in a dying condition lying near the entrance to an opening cutting, which was fenced. There were wounds upon her head, legs and thigh, and her leg was fractured. She died six hours later from internal injury. In all probability she crossed the fence during the night and fell into the cutting. Inspection and inquiry made.
8	16th May, 5 P.M.	Jinagora mine, Jharia P. O., Bihar and Orissa.	East Barari Coal Co. Ld. .	Jamani Rajwar, (*f.*), 7.	Coal . .	Not employed	Deceased fell into an old quarry, containing water about 20′ 0″ deep, and was drowned. Inspection and inquiry made.
9	19th May, unknown.	Bamanband mine, Chora P. O., Bengal.	Bamanband Coal Co. Ld.	Unknown, (*m.*), 35.	Coal .	Not employed	Deceased's body was found floating in an abandoned shaft, which was incompletely fenced. Inspection and inquiry made.

10	20th May, 9 P.M.	Lakorka mine, Katrasgarh P. O., Bihar and Orissa.	Lakorka Coal Co., Ld.	Aupa Kol, (*m.*), 30, *Coal cutter.*	Coal	Not a mining accident.	Whilst swimming in an water-logged quarry, used for bathing purposes, deceased became entangled in weeds and was drowned. Inspection and inquiry made.
11	27th May, 2 P.M.	Tirody South mine, Tirody P. O., Central Provinces.	Central Provinces Prospecting Syndicate, Ld.	Motilal, (*m.*), 7.	Manganese	Not employed	A miner, not knowing deceased was lying down below, worked away some ore and two stones, measuring 6″×6″×4″, struck deceased, who died eight hours afterwards.
12	1st June, 5 A.M.	Singaram mine, Toposi P. O., Bengal.	Singaram Coal Syndicate.	Hopni Manjhian, (*f.*), 3.	Coal	Not employed	A piece of coal, measuring 2′×1′×0′ 6″ thick, fell from a height of 17 feet in a gallery upon deceased, who was playing near her grandmother, and killed her outright. Inspection and inquiry made.
13	11th June, 11 A.M.	Sudamdih mine, Bhujudih P. O., Bihar and Orissa.	Sudamdih Coal Co., Ld.	Lalu Bauri, (*m.*), 2½,	Coal	Not employed	Deceased fell into a boiler tank, containing 6′—0″ of water, and was drowned. Inspection and inquiry made.
14	3rd July, 4 P.M.	Alkusa (North) mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Jainath Lodh, (*m.*), 4,	Coal	Not employed	A coal miner, on his return from work, brought with him a canister containing a cartridge of country gun-powder. He left the canister in the verandah and entered his hut. Shortly after there was an explosion, and, rushing out, he found his son, the deceased, near the open canister. The child was severely burnt and died on the following day. Inspection and inquiry made.
15	6th July, 1-30 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Lazur, (*m.*), 48, *Coolie.*	Wolfram	Not a mining accident.	Deceased was killed by a tree, which fell on to the cooly lines in which he was sleeping.
16	4th August, 9-30 A.M.	Damaghurria mine, Kulti P. O., Bengal.	Damaghurria Coal Co., Ld.	Bowl Manji, (*m.*), 16.	Coal	Not employed	Deceased attempted to board a train of 16 empty tubs in motion, when he missed his foothold and fell between two tubs and was run over. He died from his injuries two days later. Inspection and inquiry made.
17	8th August, 7 A.M.	Sudreadih mine, Nowagarh P. O., Bihar and Orissa.	Jainarain Ramjash Agarwalla.	Gaya Dosadh, (*m.*), 7.	Coal	Not employed	Deceased was drowned in a boiler feed water tank, the fencing of which was in disrepair. Inspection and inquiry made.
18	11th August, 8 A.M.	Golukodih mine, Jharia P. O., Bihar and Orissa.	N. M. Chowdhury & Co.	Amba Bhuiya, (*m.*), 8, *Loading coolie.*	Coal	Not a mining accident.	Deceased whilst at play, on an East Inian Railway siding, was run over, during hand shunting operations, and sustained injuries to which he succumbed in hospital a few hours later. Inspection and inquiry made.
19	11th August, 2 P.M.	Satak mine, Kamptee P. O., Central Provinces	Central India Mining Co., Ld.	Sunderia, (*f.*), 5-6.	Manganese	Not employed	Deceased was found drowned in a fenced pit.
20	28th August, 3-15 P.M.	Sinidih mine, Katrasgarh P. O., Bihar and Orissa.	Sinidih Coal Concern	Megwa Bhuiya, (*m.*), 5.	Coal	Not employed	Deceased was playing in the shade beneath an East Indian Railway wagon, which his parents were loading with coal. A second wagon was pushed against the wagon, and the impact moved the latter a few feet. The child was struck on the head by the under frame, and killed on the spot. Inspection and inquiry made.
21	19th September, 3-45 P.M.	Fariapur mine, Charanpur P. O., Bengal.	Poniati Coal Concern	Biswanath Manjhi, (*m.*), 45. *Sirdar.*	Coal	Not a mining accident.	While an empty wagon was being hand shunted on a siding, it collided with another wagon and deceased was caught between the buffers and crushed to death. Inspection and inquiry made.

Fatal Accidents, 1917—*concld.*

Serial number.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
		DEATHS NOT INCLUDED IN THE STATISTICS.—(*30 deaths*).					
22	24th September, 11 A.M.	Egarcoor mine, Mugma P. O., Bihar and Orissa.	New Chirkunda Coal Co.	Punia Bhemin, (*f.*), 2½.	Coal	Not employed	Deceased was run over by a loaded tub while crossing a surface tramline, and killed instantaneously. The tub was running uncontrolled on a grade of 1 in 24. Inspection and inquiry made.
23	26th September, 11 A.M.	Kanbouk mine, Tavoy P. O., Burma.	Kanbauk (Burma) Wolfram Mines, Ld.	Yan Tse Chaung, (*m.*), 39, *Coolie.*	Wolfram	Not a mining accident.	Deceased was drowned in an old excavation.
24	27th September, unknown.	Jotejanaki mine, Toposi P. O., Bengal.	P. K. Chatterjee	Gouri Kori, (*f.*), 35.	Coal	Not employed	Deceased's body was found floating in a feed water tank. As she was subject to epileptic fits, it is surmised that she had a seizure while bathing. Inspection and inquiry made.
25	10th October, 2 P.M.	Ganhudih mine, Jharia P. O., Bihar and Orissa.	Sosi Bhusan Banerjee	Josada Malain, (*f.*), 35.	Coal	Not employed	Deceased, whilst suffering from depression, due to illness, jumped into an old water-logged shaft and was drowned. Inspection and inquiry made.
26	17th October, 3 P.M.	Isabella mine, Nowagarh P. O., Bihar and Orissa.	Isabella Coal Co.	Fagni Bhuiyani, (*f.*), 2.	Coal	Not employed	Deceased, whilst at play, fell into a boiler tank, measuring 10′ × 15′ × 4′ deep, and was drowned. Inspection and inquiry made.
27	13th November, 1-30 P.M.	Sanctoria mine, Deshgararh P. O., Bengal.	Bengal Coal Co., Ld.	Habid Mcain, (*f.*), 4.	Coal	Not employed	Deceased was playing with a 10″ × 5″ steam pump, which was standing on the ground preparatory to being despatched to another colliery when it fell over on its side, pinning her beneath it and killing her outright. Inspection and inquiry made.
28	27th November, 4 A.M.	Moheshpur mine, Katrasgarh P. O. Bihar and Orissa.	M. K. Khanna	Mahabal Singh, (*m.*), 33, *Overman.*	Coal	Not a mining accident.	The mine office caught fire and deceased was burned to death.
29	8th December, 5-30 A.M.	Awlajeri mine, Balaghat P. O., Central Provinces.	Messrs. Byramji Pestonji & Co.	Jungan, (*f.*), 23.	Manganese	Not employed	Deceased fell into a mine, which was full of water, and was drowned.
30	28th December, 10 P.M.	Taungpila mine, Tavoy P. O., Burma.	Quah Cheng Guan	Lum Wah, (*m.*), 24.	Wolfram	Not a mining accident.	Deceased, while drawing water from a well, overbalanced and was drowned.

APPENDIX II.

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1917.

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
						A.—COAL.							
Assam	Lakhimpur	2,579	18	24	..	24	77	73	7	80	13·27	...	9·31
	Naga Hills	334	...	...	...	...	2	1	1	2	...	...	...
	Sibsagar	28	..	..	...	...	...	...	...	...	...	..	...
	TOTAL	2,941	18	24	...	24	79	74	8	82	12·45	...	8·16
Baluchistan	Kalat	125	..	...	...	...	...	...	...	...	...	...	...
	Loralai, Loralai	18	1	2	...	2	...	...	...	...	200·00	...	111·11
	Quetta, Pishin	79	...	...	...	...	...	...	...	...	...	...	...
	Sibi, Khost,	733	6	5	1	6	4	4	...	4	11·74	3·26	8·19
	TOTAL	955	7	7	1	8	4	4	...	4	11·53	2·87	8·38
Bengal	Bankura, Raniganj	100	...	...	...	...	...	...	...	..	...	...	...
	Birbhum „	32	...	...	..	..	...	..	...	...	...	...	...
	Burdwan „	38,453	29	32	3	35	36	32	7	39	1·33	·21	·91
	TOTAL	38,585	29	32	3	35	36	32	7	39	1·33	·21	·91
Bihar and Orissa	Hazaribagh: Bokaro-Ramgarh	4,170	...	...	...	...	2	1	1	2	...	...	...
	Hazaribagh: Giridih	9,916	2	2	1	3	17	14	3	17	·29	·34	·30
	Hazaribagh: Jharia	948	2	1	1	2	4	1	3	4	1·76	2·62	2·11
	Manbhum, Jharia	79,452	59	61	8	69	55	38	19	57	1·23	·27	·87
	„ Raniganj	9,010	8	8	...	8	5	...	5	5	1·79	...	·89
	Palamau, Daltonganj	862	1	...	1	1	2	1	1	2	...	2·61	1·16
	Sambalpur, Hingir-Rampur	542	...	...	...	...	1	1	...	1	...	...	...
	Sonthal Parganas, Jalnty	896	...	...	...	...	2	1	1	2	...	...	...
	„ Raniganj	114	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	105,910	72	72	11	83	88	57	33	90	1·11	·27	·78
Central Provinces	Chanda, Ballarpur	1,192	2	2	...	2	5	7	...	7	2·98	..	1·68
	Chhindwara, Pench Valley	1,680	7	7	1	8	8	7	1	8	5·53	2·41	4·76
	Narsinghpur, Mohpani	1,357	1	1	...	1	3	1	2	3	1·22	..	·74
	Yeotmal	16	..	...	...	...	...	...	...	...	...	...	...
	TOTAL	4,245	10	10	1	11	16	15	3	18	3·63	·67	2·59
North-West Frontier Province.	Hazara	14	..	...	...	...	...	...	...	...	...	...	...
Panjab	Jhelum	835	2	2	...	2	1	1	...	1	3·31	...	2·40
	Mianwali	44	...	...	...	...	...	...	...	...	...	...	...
	Shahpur	154	...	..	..	...	...	...	...	...	...	...	...
	TOTAL	1,033	2	2	...	2	1	1	...	1	2·92	...	1·94
	GRAND TOTAL (COAL)	153,683	138	147	16	163	224	183	51	234	1·55	·27	1·06

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and abo ut mines regulated by the Indian Mines Act, 1901, during the year 1917—*contd.*

Provinces.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths.			Number of serious non-fatal accidents.	Number of persons seriously injured.					
				Below ground.	Above ground.	Total deaths.		Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
			B.—MICA.										
Bihar and Orissa	Bhagalpur	14	...	...	...	...	...	...	...	...	...	...	...
	Gaya	2,511	...	...	...	...	1	1	...	1	...	...	...
	Hazaribagh	12,499	3	3	...	3	3	2	1	3	·39	...	·24
	Monghyr	1,106	...	...	...	...	...	...	...	...	...	...	...
	Sambalpur	122	...	...	...	...	...	...	...	...	...	...	...
	Total	16,252	3	3	...	3	4	3	1	4	·30	...	·18
Madras	Nellore	3,739*	2	2	...	2	2	2	...	2	·70	...	·58
	Salem	153	...	...	...	...	1	1	...	1	...	...	...
	Total	3,892	2	2	...	2	3	3	...	3	·69	...	·51
Rajputana	Ajmer-Merwara	371	...	...	...	...	...	...	...	...	...	...	...
	Bewar	14	...	...	...	...	...	...	...	...	...	...	...
	Total	385	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Mica)	20,529	5	5	...	5	7	6	1	7	·38	...	·24
			C.—MANGANESE.										
Bombay	Panch Mahals	878	...	...	...	...	3	1	2	3	...	...	...
Central Provinces	Balaghat	6,145	...	...	...	...	1	...	1	1	...	...	...
	Bhandara	540	...	...	...	...	1	...	1	1	...	...	...
	Chhindwara	2,069	1	1	...	1	2	...	2	2	·61	...	·48
	Jabalpur	13	...	...	...	...	...	...	...	...	...	...	...
	Nagpur	4,130	...	...	...	...	...	...	...	...	...	...	...
	Total	12,897	1	1	...	1	4	.	4	4	·10	...	·08
Madras	Vizagapatam	203	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Manganese)	13,978	1	1	...	1	7	1	6	7	·09	...	·07
			D.—LIMESTONE.										
Central Provinces	Jabalpur-Katni	1,797†	1	1	..	1	1	1	...	1	·75	...	·56
			E.—SALT.										
Panjab	Jhelum	916	...	...	...	...	5	2	3	5	...	...	...
	Mianwali	89	...	...	...	...	...	...	...	...	...	...	...
	Shahpur	92	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (Salt)	1,097	...	...	...	...	5	2	3	5	...	...	...
			F.—GEMS.										
Burma	Mogok (Rubies, etc.)	1,245	...	...	...	...	2	1	1	2	...	...	...

* Includes labour figures for Central Provinces, Fullers Earth.
† Includes labour figures for Madras, Samarakite.

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1917—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
			G.—SLATE.										
Bihar and Orissa	Monghyr	151	...	...	...	...	...	...	...	...	...	...	...
Panjab	Gurdaspur	11	...	...	...	...	...	...	...	...	...	...	...
	Gurgaon	143	...	...	...	...	...	...	...	...	...	...	...
	Kangra	306	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	460	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (SLATE)	611	...	...	...	...	...	...	...	...	...	...	...
			H.—GOLD.										
Bihar and Orissa	Singhbhum	119	...	...	...	...	...	...	...	...	...	...	...
Madras	Anantapur	1,768*	7	7	...	7	11	8	3	11	8·22	...	3·96
	GRAND TOTAL (GOLD)	1,887	7	7	...	7	11	8	3	11	7·69	...	3·71
			I.—IRON ORE.										
Bihar and Orissa	Pêri	22	...	...	...	...	...	...	...	...	...	...	...
	Singhbhum	1,576	1	...	1	1	2	...	2	2	...	2·04	·63
	TOTAL	1,598	1	...	1	1	2	...	2	2	...	1·95	·63
Rajputana	Ajmir-Merwara	8	...	...	...	...	...	...	...	...	..	...	...
	GRAND TOTAL (IRON ORE)	1,606	1	...	1	1	2	...	2	2	...	1·95	·62
			J.—WOLFRAM.										
Bihar and Orissa	Singhbhum	37	1	...	1	1	...	...	...	..	...	...	27·03
Burma	Mergui	325	1	...	1	1	1	...	1	1	...	6·41	3·08
	Tavoy	8,996	18	10	9	19	27	11	18	29	2·21	2·01	2·11
	Thaton	1,018	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	10,339	19	10	10	20	28	11	19	30	1·77	1·97	·97
	GRAND TOTAL (WOLFRAM).	10,376	20	10	11	21	28	11	19	30	1·89	2·17	2·02
			K.—MAGNESITE.										
Madras	Salem	1,315	...	...	...	...	...	...	...	...	...	...	...
			L.—CHROMITE.										
Baluchistan	Zhob	94	...	...	...	...	1	2	...	2	...	...	...
Bihar and Orissa	Singhbhum	609	...	..	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (CHROMITE)	708	...	...	..	...	1	2	...	2	...	...	..

* Includes labour figures for Madras, Silver.

APPENDIX II—*concld.*

Table No. 2—*concld.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1917—*concld.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
		M.—COPPER ORE.											
Bihar and Orissa	Singhbhum	1,672	...	...	...	...	3	1	2	3	...	...	...
		N.—BAUXITE.											
Central Provinces	Jabalpur	46	...	...	...	...	...	...	...	...	...	...	...
		O.—CLAY.											
Bihar and Orissa	Manbhum	232	1	1	...	1	...	...	...	...	8·00	...	4·31
	Palamau	51	...	...	...	...	1	1	...	1	...	...	...
	TOTAL	283	1	1	...	1	1	1	...	1	6·62	...	3·53
Central Provinces	Jabalpur	288	...	...	...	...	...	...	...	...	...	...	...
Delhi	Delhi	14	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (CLAY)	585	1	1	...	1	1	1	...	1	2·53	...	1·71
		P.—GALENA.											
Central Provinces	Drug	20	...	...	...	...	...	...	...	...	...	...	...
		Q.—TIN.											
Burma	Mergui (Maliwun)	58	...	...	...	...	...	...	...	...	...	...	...
	Tavoy	99	...	...	...	...	...	...	...	...	...	...	...
	Thaton	174	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (TIN)	331	...	...	...	...	...	...	...	...	...	...	...
		R.—STEATITE.											
Central Provinces	Jabalpur	284	1	1	...	1	...	...	...	...	5·74	...	3·52
Madras	Kurnool	19	...	...	...	...	...	...	...	...	...	...	...
Rajputana	Ajmer-Merwara	15	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (STEATITE)	318	1	1	...	1	...	...	...	...	5·24	...	3·14
		S.—YELLOW OCHRE.											
Central Provinces	Chanda	28	...	...	...	...	...	...	...	...	...	...	...
		T.—GRAPHITE.											
Rajputana	Ajmer-Merwara	54	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (ALL MINES)	211,881	175	173	28	201	292	217	88	305	1·30	·36	·95

APPENDIX II—*contd.*

Table No. 3.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1917, classified according to the age and sex of the workers.

Mineral.	Province and mineral field.	Number of separate fatal accidents.	Number of Deaths.								Total below and above ground.
			Below ground.				Above ground.				
			Adult males.	Adult females.	Children (under 13).	Total.	Adult males.	Adult females.	Children (under 13).	Total.	
Coal	Assam, Lakhimpur	18	24	...	...	24	...	...	...	...	24
	Baluchistan — Loralai	1	2	...	...	2	...	...	...	...	2
	Baluchistan — Sibi, Khost	6	5	...	...	5	1	...	...	1	6
	Total Baluchistan	7	7	...	...	7	1	...	...	1	8
	Bengal, Raniganj	29	27	5	...	32	3	...	...	3	35
	Bihar and Orissa — Palamau, Daltonganj	1	...	...	...	...	1	...	...	1	1
	Bihar and Orissa — Giridih	2	1	1	...	2	1	...	...	1	3
	Bihar and Orissa — Jharia, Hazaribagh	2	1	...	...	1	1	...	...	1	2
	Bihar and Orissa — Jharia, Manbhum	59	51	9	1	61	8	...	...	8	69
	Bihar and Orissa — Manbhum, Raniganj	8	8	...	...	8	...	...	...	...	8
	Total Bihar and Orissa	72	61	10	1	72	11	...	...	11	83
	Central Provinces — Chanda	2	2	...	...	2	...	...	...	...	2
	Central Provinces — Chhindwara	7	7	...	...	7	1	...	...	1	8
	Central Provinces — Narsinghpur	1	1	...	...	1	...	...	...	...	1
	Total Central Provinces	10	10	...	...	10	1	...	...	1	11
	Punjab, Jhelum	2	2	...	...	2	...	...	...	...	2
	Total Coal	138	131	15	1	147	16	...	...	16	163

APPENDIX II—*contd.*

Table No. 3—*concld.*

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1917, classified according to the age and sex of the workers—*concld.*

Mineral.	Province and mineral field.	Number of separate fatal accidents.	Number of deaths.								Total below and above ground.
			Below ground.				Above ground.				
			Adult males.	Adult females.	Children (under 12).	Total.	Adult males.	Adult females.	Children (under 12).	Total.	
Mica	Bihar and Orissa, Hazaribagh	3	3	...	...	3	..	...	...	...	3
	Madras, Nellore	2	2	...	...	2	...	...	...	...	2
	Total Mica	5	5	...	...	5	...	...	...	...	5
Manganese	Central Provinces, Chhindwara	1	...	1	...	1	...	...	...	..	1
Limestone	Central Provinces, Jabalpur	1	1	...	...	1	...	...	...	...	1
Steatite	Central Provinces, Jabalpur	1	1	...	...	1	.	...	...	...	1
Gold	Madras, Anantapur	7	7	...	...	7	...	...	...	...	7
Iron Ore	Bihar and Orissa, Singhbhum	1	...	...	...	...	.	1	...	1	1
Wolfram	Burma — Mergui	1	...	...	...	...	1	...	...	1	1
	Burma — Tavoy	18	10	...	...	10	9	...	...	9	19
	Total Burma	19	10	...	...	10	10	...	...	10	20
	Bihar and Orissa, Singhbhum	1	...	...	...	...	1	...	...	1	1
	Total Wolfram	20	10	...	...	10	11	...	..	11	21
Clay	Bihar and Orissa, Manbhum	1	1	...	...	1	...	...	...	...	1
GRAND TOTAL (ALL MINERALS)		175	156	16	1	173	27	1	...	28	201

APPENDIX II—*concld.*

Table No. 4.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1917, classified according to cause of accident.

Mineral worked.	Number of separate fatal accidents.	Number of persons killed.											Death-rate per 1,000 persons employed.		
		Explosions of fire-damp.	Falls of roof.	Falls of side.	In shafts.	Suffocation by gases.	By explosives.	Irruptions of water or falling into water.	Haulage.	Miscellaneous below ground.	Surface.	Total deaths.	Below ground.	Above ground.	Below and above ground.
Coal	138	1	60	34	10	3	7	4	19	14	11	163	1·55	·27	1·06
Clay	1	...	...	1	...	...	...	...	...	...	...	1	2·53	...	1·71
Gold	7	...	...	1	5	...	1	...	...	...	...	7	7·69	...	3·71
Iron	1	...	...	...	...	...	...	...	...	...	1	1	...	1·95	·62
Limestone	1	...	...	...	...	...	...	...	...	1	...	1	·75	...	·56
Manganese	1	...	...	...	...	...	...	...	1	...	...	1	·09	...	·07
Mica	5	...	...	3	1	...	1	...	...	...	...	5	·38	...	·24
Steatite	1	...	...	1	...	...	...	...	...	...	...	1	5·24	...	3·14
Wolfram	20	...	1	10	...	...	...	...	...	...	10	21	1·89	2·17	2·02
Total 1917	175	1	61	50	16	3	9	4	20	15	22	201	1·30	·36	·95
Total preceding year.	140	14	46	35	29	...	4	3	12	7	56	206	1·18	·79	1·04
Difference	+35	—13	+15	—15	—13	+3	+5	+1	+8	+8	—34	—5	+·12	—·43	—·09

APPENDIX III.

PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901.

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1917.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bihar and Orissa	Manbhum	1	3	2	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	Proceedings instituted in 1916.
	Do.	1	2	1	Section 15 (2) of the Indian Mines Act, 1901.	Ditto.
	Do.	1	3	3	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	Ditto.
	Do.	1	1	1	Section 20, Rule 1 of Notification No. 11793—103, dated 30th December 1908.	
	Do.	1	2	2	Section 13 (1), Rule 46 of Notification No. 2968—82, dated 21st April 1906, and Rule 7 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	2	2	Section 20, Rules 3 and 7 of Notification No. 864-68—20, dated 10th March 1904, and Rule 2 of Notification No. 11793—103, dated 30th December 1908.	
	Do.	1	2	1	Section 13 (1) read with Rule 47 of Notification No. 2968—82, dated 21st April 1906.	
	Do.	1	2	2	Section 20, Rule 2 of Notification No. 11793—103, dated 30th December 1908, and Rules 2 (*b*) and 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 20 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 1 (*c*) of Notification No. 864-68—20, dated 10th March 1904, and Section 13 (1) read with rules 46 and 47, of Notification No. 2968-82, dated 21st April 1906.	
	Do.	1	1	1	Section 20, Rule 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 7 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	2	2	Section 20, Rules 3, 7 and 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do	1	1	1	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 13 (1) read with Rule 46 of Notification No. 2968—82, dated 21st April 1906.	
	Do.	1	1	...	Section 20, Rule 1 of Notification No. 5072—113, dated 1st July 1916.	Withdrawn.
	Do.	1	1	...	Ditto. ditto.	Ditto.

APPENDIX III—*concld.*

PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901—*concld.*

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1917—*concld.*

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bengal	Burdwan	1	1	1	Section 20, Rule 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Ditto. ditto.	
	Do.	1	2	2	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rules 1, 7 and 14, of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 15 (2) and Rule 2 (*c*) of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	3	...	Section 20, Rule 1 of Notification No. 5072—113, dated 1st July 1916.	Withdrawn.
Madras	Nellore	1	1	1	Section 20, Rule 17 of Notification No. 6436—152, dated 2nd September 1911 and Rule 8 of Notification No. 11793-103, dated 30th December 1908.	

APPENDIX IV.

MISCELLANEOUS.

Statement No. 1.

List of Inspection Circles.

No. 1 Circle.	No. 2 Circle.
1. All mines in Bihar and Orissa except mines in the district of the Santhal Parganas and such mines in the district of Manbhum as lie east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the district.	1. All mines in Bengal.
	2. Such mines in Bihar and Orissa as lie in the district of the Santhal Parganas and in the district of Manbhum east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the district.
2. All mines in Baluchistan.	
3. All mines in the North-West Frontier Province.	3. All mines in Bombay.
4. All mines in the Punjab.	4. All mines in the Central Provinces.
5. All mines in Rajputana.	5. All mines in Madras.
6. All mines in Assam.	6. All mines in Burma.

Statement No. 2.

List of holders of certificates as managers of coal mines in British India.

(a) Certificates granted to holders of English Certificates of competency.

FIRST CLASS.

NAME.	No. of Indian certificate.	Date of Indian certificate.	No. of English certificate.	Date of English certificate.
Young, Robert	210	5th December 1917 .	3422	15th June 1909.

(b) Certificates of competency.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Martin, Cyril Laing	92	4th April 1917.	
Carapiet, Gregory George	93	Ditto.	
Banerjee, Jadu Gopal	94	Ditto.	
Thompson, John	95	Ditto.	
Ghose, Hrishikesh	96	Ditto.	
Dholakia, Jhaverilal K.	97	Ditto.	
Roy, Harish Chandra	98	Ditto.	
Roy, Upendra Nath	99	Ditto.	
Pearce, Abraham	100	Ditto.	

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 2—*concld.*

List of holders of certificates as managers of coal mines in British India—*concld.*

(*b*) Certificates of competency—*concld.*

SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Lyon, Horace Albert	133	4th April 1917.	
Aukim, E. Burton	134	Ditto.	
Ghosh, Bhola Nath	135	Ditto.	
Walker, Terence George	136	Ditto.	
Mukherjee, Indu Bhusan	137	Ditto.	
Morgan, John	138	Ditto.	
Sircar, Haridas	139	Ditto.	
Banerjee, Shishir Kumar	140	Ditto.	
Hatton, A. R.	141	Ditto.	
Ghosh, Kristo Dhone	142	Ditto.	
Nag, Durgapado	143	Ditto.	

(*c*) Certificates of service.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Deramao, Luis Eurico Val . . .	141	13th February 1917.	

(*d*) Certificate of service.

SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Nathuji, Harisingji	191	4th April 1917.	

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 3.

List of Universities and Colleges approved by the Governor-General in Council for the purposes of Rules 32 and 33 under the Indian Mines Act 1901.

Name of Institution and Degree or Diploma.	Date.
University of Birmingham in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	11th June 1904.
University College of Bristol in respect of its Senior Diploma in Mining.	16th September 1904.
University of Cambridge in respect of its Diploma in Mining Engineering.	6th June 1905.
University of Durham in respect of its Degree of B.Sc. in Mining	21st December 1903.
Durham College of Science in respect of its Diploma in Mining	29th June 1904.
University of Glasgow in respect of its Degree and Diploma in Mining.	28th September 1904.
Glasgow and West of Scotland Technical College in respect of its Diploma in Mining.	28th June 1904.
University of Leeds in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	21st November 1904.
University of London in respect of its B.Sc. Degree in Mining for Internal Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	9th June 1905.
University of London in respect of its B.Sc. Degree in Mining for External Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	7th August 1906.
Royal School of Mines in respect of its Associateship in Mining	24th March 1904.
University of Oxford in respect of its Diploma B. for Colliery Engineers (in Scientific Engineering and Mining subjects).	11th February 1905.
University College of Sheffield in respect of its Diploma in Mining.	15th July 1904.
University College of South Wales and Monmouthshire in respect of its Diploma in Mining.	19th April 1904.
Wigan Mining and Technical College in respect of its Diploma in Mining.	26th August 1904.
Civil Engineering College, Shibpur, in respect of its Diploma in Mining.	22nd February 1907.
Merchant Venturers' Technical College, Bristol, in respect of its Diploma in Mining Engineering.	5th October 1905.
Victoria University of Manchester in respect of its Degree and Certificate of Mining.	14th February 1906.
University College of Nottingham in respect of its Diploma in Mining Engineering.	28th March 1906.
University of Sheffield in respect of its Degree of Bachelor of Engineering (Mining).	30th June 1906.
Heriot-Watt College in respect of its Certificate in Mining Engineering.	16th January 1908.
Calcutta University in respect of its Degree of Bachelor of Engineering in the Branch of Mining Engineering.	24th September 1910.
Harvard University, Cambridge, Massachusetts, in respect of its Diploma in Mining Engineering.	22nd February 1913.
Columbia University, New York, in respect of its Degree of Engineer of Mines.	13th March 1915.
California University, United States of America, in respect of its Degree of Mining Engineer.	19th February 1916.
Pittsburg University, United States of America, in respect of its Degree of Engineer of Mines.	19th February 1916.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 4.

SIBPUR COLLEGE.

THE MINING CLASSES.

Admissions to the Diploma Course in Mining at the Civil Engineering College, Sibpur.

The Diploma Course covers two sessions, commencing yearly in April, and lasting till the examination in the following March. (There is a vacation of about three months in August, September and October.) Six weeks of each session is spent at a camp of mine surveying in the colliery districts.

Two classes of students are admitted—

Regular—who need have no experience of Mining.

Special—who have had about two years' previous experience of coal-mining (underground).

Admissions are made as follows:—

Regular students—

A.—Through a special preparatory course of one year's duration at the Civil Engineering College. Admissions at the beginning of February.

B.—Through the Sub-Overseer classes (a two years' course) at Sibpur, Dacca, Burdwan, Rajshahi and Pabna, in Bengal; Bankipur and Ranchi in Bihar and Orissa.

Special students—

C.—Direct from the mines to the Mining classes without passing through either A or B. Admissions at the beginning of April. Applications must be made by 15th January accompanied by certificates from the Colliery Managers under whom the candidate has served, showing the period and nature of his employment underground.

Admission qualifications to A, B and C—

The passing of the Matriculation Examination, the Junior Cambridge Examination, the examination held at the end of the supplementary course for elementary European Schools, or equivalent.

The number that can be admitted is limited. The selection of candidates rests with the Principal who, all other things being equal, will prefer the younger of two candidates.

Scholarships—

For Regular students—

Scholarships of the following number and value are available for Regular students admitted under A, these are awarded on the result of the examination held at the end of the preparatory course A:—

Two of Rs. 12 monthly.
Three of „ 6 „

For Special students—

Awarded on the result of the examination held at the end of the lectures given in the colliery districts by the Instructor in Mining—

One of Rs. 50 for Europeans.
One or two of Rs. 25 for Indians.

These amounts should be sufficient to maintain a special student resident at the college.

For further particulars apply for the Apprentice Department Circular.

B. HEATON,
Principal, Civil Engineering College, Sibpur.

NOTE.—A student over 20 years of age has little chance of admission.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5.

MINING INSTRUCTION IN BENGAL AND BIHAR AND ORISSA.

[*The Mining Education Advisory Board desire that Colliery Managers will kindly publish this information in their collieries. An appeal is also made to them to support the lectures by seeing that members of their colliery staff, who are suitable, take advantage of the lectures and attend them regularly.*]

RANIGANJ AND JHARIA COAL-FIELDS.

LECTURES will be delivered by Mr. H. C. Read, Mining Instructor (Muslia, Asansol), throughout the session at the centres noted on the programme on the syllabus laid down for the first-year course.

All Europeans and English-speaking Indians are cordially invited to attend.

Programme for Session 1917-18.

CENTRE.			
JHARIA COAL-FIELD.			
Jharia	... Lecture-room near Club	... Mondays	... 5-30 P.M.
Sijua	... Lecture-room near Station	...Tuesdays	... 5-0 „
RANIGANJ COAL-FIELD.			
Deshergarh	Lecture-room near Club	... Wednesdays	... 5-30 P.M.
Raniganj	... Railway Institute	... Thursdays	... 5-0 „
Jamuria	... Chief Mining Engineer's office, Sibpur Colliery	... Fridays	... 5-30 „

The course of instruction, consisting of not less than 30 lectures, will commence the first week in September and end in the following April in which month an examination will be held. Candidates who pass the examination will receive a certificate recording their success. No candidate will, however, be permitted to sit for the examination unless he has attended 50 per cent. of the lectures and received 40 per cent. of the marks allotted for home work.

Rupees 100 monthly is offered in scholarships awarded by the Mining Education Advisory Board on the results of the examination, these will be tenable for two years at the Sibpur College and are granted to enable the holders to attend the full course for the Diploma in the Principles of Mining. One scholarship of Rs. 50 is reserved for Europeans and two of Rs. 25 are awarded to Indians.

The following Sub-Committees have been appointed:—

RANIGANJ COAL-FIELD.

Deshergarh Centre.	*Jamuria Centre.*	*Raniganj Centre.*
Mr. G. C. Leach, *Chairman.*	Mr. G. C. Leach, *Chairman.*	Mr. G. C. Leach, *Chairman.*
„ Glen George (Deshergarh).	„ P. S. Keelan (Charanpur).	„ P. S. Keelan (Charanpur).
„ Geo. Miller (Sitarampur).	„ T. Samson (Charanpur).	„ A. T. Creet (Kalipahari).
„ F. Owen (Deshergarh).	„ R. Mitchell (Nandi).	„ W. J. Rees (Raniganj).
Babu M. N. Roy (Begunia).	„ W. S. Elphinstone (Asansol).	Babu Promotho Nath Hazra (Toposi).
„ P. C. Tarafdar (Mugma).	Babu Atul Sashi Mitra (Asansol).	„ Kali Kumar Misra (Searsole Raj Estate).
„ Hari Prasanna Ghosh (Mugma).		„ S. Chaudhuri (Jamehari, Raniganj).

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5—*contd.*

JHARIA COAL-FIELD.

Jharia Centre.	*Sijua Centre.*
Mr. R. R. Simpson,	Mr. R. R. Simpson,
Chairman.	*Chairman.*
„ R. G. M. Bathgate (Jamadoba).	„ A. A. Agabeg (Sijua).
„ J. S. Kean (Jamadoba).	„ R. Heron (Ekra, Bansjora).
„ E. D. James (Lodna).	„ B. Starkefield (Bansjora).
„ R. Barrowman (Standard Coal Company, Jharia).	„ H. M. Bull (Bansjora P. O.).
Babu Gobhurdhan Das Manishankar (Jharia).	Babu Trikundas Doyal (Bansjora).
„ Narendra Nath Sarkar (South Kujama, Jharia).	„ Basanta Kumar Ray (Kirkend).

Copies of the syllabus may be obtained from the Mining Instructor.

SYLLABUS OF THE COURSE OF INSTRUCTION.

FIRST-YEAR COURSE.

1. *Geology.*—General structure of the earth's crust; igneous and aqueous rocks; definitions of outcrop, dip, strike, fault, roll, wash-out and dyke, etc.; recording geological observations, reading a geological map; description of the Indian coal bearing rocks; composition and properties of coal. Commercial values of coal.

2. *Exploration.*—Prospecting, trial shafts and trenching; advantages of boring; methods of boring; driving through faults, uses of boreholes in mines, etc.

3. *Breaking grounds.*—Common tools; storage and use of explosives; electric fuses; machine drills; coal-cutting machines.

4. *Sinking.*—Site of colliery; position of inclines and shafts, their excavation and shape, apparatus used in sinking; lining shafts; arrangements at top of sinking shafts; brief mention of special methods of sinking.

5. *Methods of working.*—Quarrying, advantages of bench works, disposal of spoil; shaft pillars; pillar and gallery method, working thick seams in stages, extraction of pillars, panels; brief description of longwall and chambering methods.

6. *Supporting.*—Props and lids, bars, chocks or cogs, square sets, special timbering in loose ground; arching; steel girders; packing; dry and hydraulic stowing.

7. *Mine gases.*—Their experimental preparation by chemicals, and illustration of their physical and physiological properties; their chemical composition; methods of detecting; explosions; spontaneous combustion of coal; dangers of coal dust.

8. *Ventilation.*—Ascensional currents, currents induced by the heat of steam or furnace; mine fans; friction of air in mines; theory of splitting the air; calculations of ventilating pressure, etc.; coursing the air; measurement of quantity of air; use of anemometer, water-gauze, thermometer and barometer; reversing the air current.

9. *Safety lamps.*—Principle of the safety-lamps; Sir Humphrey Davy's experiment; types of safety lamps; firedamp detectors.

SECOND-YEAR COURSE.

1. *Applied Mechanics.*—Mensuration; definitions of force, motion, friction, work and energy; the simple machines; mechanical and electrical units; hydrostatics; the siphon; pressure of gases; Boyles' law.

2. *Steam, Electricity and Compressed air.*—Theory of steam; boilers and their fittings; the steam engine; the dynamo; the electric motor; the air compressor.

3. *Winding.*—Types of winding engines and description of parts; calculation of the dimensions of winding engines; strength of ropes and chains; detaching hooks; overwinding prevention devices; rope cappings; care and examination of ropes, buckets, cages, guide ropes.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5—*concld.*

SECOND-YEAR COURSE—*concld.*

4. *Pumping.*—The lift pump; the force pump; sinking pump; pumps with positive valve motion; the pulsometer; turbine pumps; calculations of the dimensions of pumps; methods of supporting pumps and pipes; strength of pipes; pipe joints; dams to hold back water.

5. *Hauling.*—Tramways; tubs; hand tramming; horse haulage; self-acting inclines; locomotives; single rope haulage; main and tail rope haulage; endless rope or chain haulage; calculations of the dimensions of hauling engines, ropes, etc.; capping of haulage ropes; couplings; haulage clips, etc.; signalling.

6. *Surface arrangements.*—Headframes and pulleys; receiving frames; keps; arrangements of roads on pit bank; tipplers; simple screening and sizing; railway sidings; aerial ropeways.

7. Simple treatment of coking and bye-product ovens.

Adopted by the Mining Education Advisory Board at their meeting of 27th January 1917.

B. HEATON,
Secretary.

CIVIL ENGINEERING COLLEGE, SIBPUR;
The 15th March 1917.

Statement No. 6.

No. 102-C.

CENTRAL PROVINCES SECRETARIAT.

DEPARTMENT OF COMMERCE AND INDUSTRY.

NOTIFICATION.

Dated Camp Pachmarhi, the 11th May 1917.

In exercise of the power conferred by Section 9, Sub-section (1) of the Indian Mines Act, 1901 (VIII of 1901), the Chief Commissioner is pleased to constitute a Mining Board for the Central Provinces and to appoint the following persons to be Chairman and Members, respectively of the said Board:—

CHAIRMAN.

1. The Commissioner, Nagpur Division.

MEMBERS.

2. The Deputy Commissioner, Nagpur.

3. The Chief Inspector of Mines in India.

4. Mr. F. L. D. Simpson, General Manager of the Mohpani Colliery, to represent the Coal Industry.

5. Mr. H. D. Coggan, General Manager of the Central India Mining Company, Limited, Kamptee, to represent the Manganese Industry.

Nominated by the Central Provinces and Berar Mining Association.

J. F. DYER,
Third Secretary to the Chief Commissioner, Central Provinces.

APPENDIX IV—*concld.*

MISCELLANEOUS—*concld.*

Statement No. 7.

GOVERNMENT OF INDIA.

ORDER

BY

COAL CONTROLLER.

Under Rule 11 C. C. of the Defence of India Act, 1915 (IV of 1915) notice is hereby given that without a license issued by the undersigned no work shall be started or re-started, and no labour shall be employed, in any coal mine in the provinces of Bengal and Bihar and Orissa which was not being worked on the 1st December 1917.

For the purpose of this notice the words "Coal mine" include pits, inclines or quarries.

G. C. GODFREY,
Coal Controller.

1, COUNCIL HOUSE STREET,
CALCUTTA,
8th December 1917.

Statement No. 8.

LAND ACQUISITION (MINES) ACT, 1885.

Particulars required to be furnished by colliery owners to Local Governments when giving notice under Section IV of the Land Acquisition (Mines) Act, 1885, of their intention to work coal under land acquired for a railway :—

(*a*) The name, residence and profession of the person giving the notice.

(*b*) The name of the mine, together with that of the village and district in which the mine is situate.

(*c*) The name of the railway line or of the siding and the main line to which the siding is attached, under which the mine is situate.

(*d*) The names of the railway stations and the mileage between which the said siding or the said portion of the railway land, under which the mine is situate falls.

(*e*) The number and date of the declaration under which the land was acquired.

(*f*) A tracing showing the boundaries of, and the area over which, the acquired land extends.

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8, HASTINGS STREET

Department of Mines, India

REPORT

OF THE

CHIEF INSPECTOR OF MINES IN INDIA

UNDER THE INDIAN MINES ACT (VIII OF 1901)

FOR THE YEAR ENDING

31st December 1918

BY

G. F. ADAMS, M. Inst. C. E.

Chief Inspector of Mines in India

OF THE BOMBAY BRANCH

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1919

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FROM

G. F. ADAMS, ESQ., M.INST., C.E.,
Chief Inspector of Mines in India,

To

THE SECRETARY TO THE GOVERNMENT OF INDIA,
DEPARTMENT OF COMMERCE AND INDUSTRY.

Dated Dhanbad, 20th May 1919.

SIR,

I HAVE the honour to submit the report upon the inspection of mines in British India for the year ending 31st December 1918.

EXPLANATORY INTRODUCTION.

It is necessary to explain that this is a report relating entirely to the administration of the Indian Mines Act, 1901, and is not a complete statistical review of Indian mining and analogous industries. It should be remembered in reading the statistics that there must be a considerable output from quarries which are under 20 feet deep, and, owing to the exclusion of such places from the scope of the Mines Act, these figures should not be regarded as a complete index to the production of the mineral wealth of the country.

Figures of production of all minerals raised in British India and the Native States, whether from workings under the Act or not, are published annually in the Records of the Geological Survey of India, whilst every five years a Quinquennial Review of the Mineral Production of India is issued by the same Department. The latest review published is that for the years 1909-13 (Records, Geological Survey of India, Volume XLVI). Figures for Mysore, where most of the Indian gold is raised, are given in the report of the Chief Inspector of that Native State, and mineral statistics may also be found in the administrative reports of the various Presidencies, Provinces and States of India.

This report is divided into five sections, *viz.* :—

Section I.—Persons employed.
„ II.—Output of mineral.
„ III.—Accidents.
„ IV.—Prosecutions and additions to the Act.
„ V.—General remarks.

Section I.—Persons Employed.

During the year 1918 the average number of persons working in and about the mines regulated by the Indian Mines Act was 237,738, of whom 150,064 worked underground and 87,674 on the surface. This is an increase of 25,857 workers or 12·12 per cent.

One hundred and forty-seven thousand two hundred and nineteen were adult males, 82,492 were adult females and 8,027 were children under 12 years of age.

Those employed in coal mines numbered 176,269, which is an increase of 22,586, compared with those employed in 1917.

Labour was plentiful in the coalfields of Bengal and Bihar and Orissa and there was a large increase in the number of people employed. They may be said to have enjoyed a fair share of the prosperity that crowned the coal mining industry. This, compared with scarcity in other districts, probably contributed more than anything else to the plentiful supply.

The Mining Engineer to the Railway Board has permitted a reference to be made to a chart prepared by him, showing the weekly attendance of labour in the Jharia and Raniganj coalfields during the year. This shows that from the high period covered by the 6th to the 10th week to the low period about the 32nd week, more than half the labour in Jharia left the field, while in the other coalfields less than one-third did so. Moreover, the line for Jharia between these periods shows an almost continual drop, while the line for the Raniganj coalfield waves more. The reason for this difference is to be found in the fact that in the Raniganj coalfield more labourers are permanently settled on the collieries than is the case in Jharia, and of those who are not so settled most of the Jharia labourers come from long distances and are not able to come and go between their homes and the collieries in the way in which the others, most of whom live within 20 miles of the collieries, are able to do.

In Assam Sirdari recruiting resulted in 706 labourers being recruited by 276 sirdars, as against 491 in 1917 by 245 sirdars; the figures for Mekranis were 143, as against 113, and for Nepalese 740, as against 949.

In the Pench coalfield in the Central Provinces the health of the labour force was very poor throughout the year, during the latter part of which influenza took a heavy toll. Food supplies were insufficient and colliery owners had to make arrangements to purchase the requirements of their labour and sell the grain even at a loss, in order to keep the miners at work.

In the wolfram mine field in the Tavoy District shortage of labour is still complained of. The indigenous population is ill-adapted for a miner's existence. The Karens of the hill tracts are too few in number to have any influence except as prospectors after their own fashion. The local Burmese will work at tributing, but are irregular and useless for methodical underground practice. The shortage has been partially made up by the importation of Chinese, the influx of Indians of every race and creed and by a certain amount of "ticket-of-leave" labour. The latter under good supervision have proved efficient miners. The Chinese are the mainstay of mining and are good labourers, although it is difficult to get them to do anything except in their own way.

Section II.—Output of Minerals.

COAL.

In the last report it was stated that the seventeenth million had been reached for the first time. It has now to be recorded that in 1918 an output of 19,847,039 tons was reached. This is an unprecedented increase of 2,520,655 tons, or 14·55 per cent. over the output in 1917. The opening stocks were 515,874 tons and the closing stocks were 1,785,732 tons. The despatches amounted to 15,920,804 tons and the colliery consumption 1,948,764 tons (9·82 per cent. of the output). The amount of coal delivered to coking was 707,613 tons from which 185,993 tons of hard coke and 240,269 tons of soft coke were made. Analyses of these figures will be found in Appendix 1, Table 2.

As in 1917 this increase was general, the only decrease being in Assam. The output in Bengal increased by nearly two-thirds of a million tons. The chief increase, however, was in Bihar and Orissa, being very nearly one and three-quarters of a million tons.

Of the total output 18,977,911 tons or 95·62 per cent. were raised in Bengal and Bihar and Orissa, the percentage of the previous five years being 95·87. In the last report the difficulty of drawing any comparison between the conditions in 1917 and pre-war conditions was pointed out, and the remark applies with equal force to the year under report. In the last report attention was drawn to the appointment, late in the year, of a Coal Controller and it was stated that

his methods of regulating matters did not affect the period under report. In 1918, however, practically the whole of the trade was under his control. One of the first steps taken was to restrict the output of collieries working the poorer class coals. Whether as a result of this or not, the 25 largest concerns, the great majority of whom in 1917 showed decreases, as compared with the previous year, showed, in the year under report, increases in 18 cases. The general opinion is that the result of the restrictions above mentioned was to induce labour to these larger collieries, although other causes contributed to a general increase of labour supply.

All coal, except that of markedly inferior quality, was requisitioned, at prices fixed by the Controller on the basis of cost of production *plus* a certain profit, the result being that practically every consumer in India received his coal from that officer. There was a certain and very limited amount of free coal, of an inferior character, which naturally, under the circumstances, fetched abnormally higher prices, but, as stated, the amount was very limited, owing to the fact that these collieries were restricted in output and also owing to the fact that requisitioned coal had priority as regards wagons.

In other provinces there was a decrease in Assam, 2·47 per cent. and increases in the Central Provinces, 29·60 per cent. in the North-West Frontier Province (output negligible), 11·62 per cent., in the Punjab, 1·12 per cent. and in Baluchistan 5·74 per cent.

The output per person employed during the year was (*a*) below ground 181 tons and (*b*) above and below ground 113 tons. The figures for the five years preceding were (*a*) 178 and (*b*) 114. Taking each group of coalfields separately, these figures were as follows :—Bengal and Bihar (*a*) 185 and 182, (*b*) 115 and 116; Assam (*a*) 150 and 159, (*b*) 96 and 106; Baluchistan (*a*) 76 and 70, (*b*) 43 and 45; the Central Provinces (*a*) 122 and 122, (*b*) 79 and 82, and the Punjab and North-West Frontier Province (*a*) 58 and 72, (*b*) 37 and 48.

The output in England in 1916 was 323 tons per person employed below ground and 251 tons per person employed above and below ground.

This largely increased output would tend to show that Indian colliery owners did not suffer much from scarcity of machinery and plant from overseas. If, however, hostilities had not been suspended when they were and manufacturers in the United Kingdom had not been set free to execute orders from India, many of which were long overdue, the scarcity of materials, especially in the case of wire ropes, would soon have begun to affect the output. The output in Assam was affected to a certain extent towards the end of the year, for want of wire ropes.

MICA.

There was a large increase in the output, which was 51,572 cwts. as compared with 35,896 cwts. in 1917, being an increase of 43·67 per cent.

This increase was almost entirely confined to the Bihar and Orissa field, although the Madras field showed a slight increase, as compared with the large decrease given in the last report.

Owing to the demand for war purposes lessees in Bihar and Orissa were urged to increase their output to the highest possible figure. Several licenses were granted to new lessees. The result was the largest output on record. Tonnage was very scarce and insurance rates were heavy. The industry, however, undoubtedly flourished throughout the year.

There was considerable improvement in the industry in Madras also, and, in addition to mining, prospecting was carried out over large areas. Some of these ventures turned out well. The cost of working at some of the older mines has much increased owing to the depth at which they are now worked.

MANGANESE.

There was again a considerable decrease in the output, which was 415,357 tons, as compared with 497,052 tons in 1917. This is a decrease of 16·43 per cent.

There was a fair demand for Munition purposes up to the signing of the Armistice, when there was an appreciable lull. The demand on the whole was not, however, as good as in 1917, and the continued shortage of tonnage restricted business.

Prices rose to 44*d.* per unit, but this record figure was due entirely to the further increase in ocean freights, which reached 126½*s.* per ton, with the result that the nett results to the exporter were no better than in the two preceding years.

WOLFRAM.

The output decreased, being 72,189 cwts. as compared with 79,312 cwts. in 1917, a decrease of 8·98 per cent. In the last quarter of the year influenza appeared in a severe form and a special inquiry showed that it was responsible for the loss of about 2,000 cwts. in output.

Seven mines produced over 2,000 cwts. as compared with 6 in 1917 and 5 in 1916. These 7 mines are responsible for about 60 per cent. of the output. It is with them that the future mainly lies, and, as they are further developed, they should account for a still larger percentage of the total.

Though tributing still holds the first place as a means of production at present, proper methods of mining are on the increase. Exploration and development work have been carried out, the district has been geologically surveyed and the results put at the disposal of the mining community. The deeper resources of the larger mines are being investigated, air compressors and rock drills installed and crushing and recovery plants designed and erected.

GEMS.

The output showed a decrease, being 164,115 carats as compared with 198,200 carats in 1917. This is a decrease of 17·19 per cent. During the whole of the year there was a gradual improvement in the price of both rubies and sapphires, more especially the latter, the demand from Paris for fine blue stones being steadily maintained. The native producers were able to dispose of their finds at better prices than had been known since the war began. The industry generally was no longer affected adversely by war conditions.

GOLD.

The output again decreased, being 19,916 ounces as compared with 22,991 ounces in 1917. This is a decrease of 13·40 per cent.

COPPER.

Only 3,619 tons were raised as compared with 20,108 tons in 1917. The decrease may be looked upon as temporary.

OTHER MINERALS.

There were increases in limestone, salt, slate, bauxite, galena, chromite, clay, tin, steatite and decreases in silver, graphite, magnesite, fuller's earth, samarskite, iron ore, ochre and molybdenite.

Three minerals, apatite, barytes and potash, appear in the Appendix for the first time.

Section III.—Accidents.

During the year 1918, at mines regulated by the Indian Mines Act, 1901, there were 209 fatal accidents, being an increase of 34 as compared with the number in 1917, and an increase of 56 as compared with the average number of the preceding five years.

In one case 10 lives, in three cases 3 lives, and in twenty cases 2 lives were lost.

These accidents involved the loss of 243 lives, which is an increase of 42 as compared with 1917.

Of these accidents I regard (*a*) 102 as being due to misadventure, (*b*) 63 to the fault of deceased, (*c*) 17 to the fault of fellow-workmen, (*d*) 3 to the fault of subordinate officials, and (*e*) 24 to the fault of the management.

Nearly half the increase was in falls of roof and sides. These numbered 110, being an increase of 18 over the previous year. Eighty-four of them occurred in the coalfields of Bengal and of Bihar and Orissa, and of this total the Jharia coalfield contributed nearly two-thirds. This is a serious increase of 30 over the number in 1917 and of 52 over the number in 1916. This increase is very largely due to the fact that every year more collieries reach the second stage of working, which is winning the pillars. It is not many years ago that the number of such collieries was infinitesimal, and work in India was almost entirely confined to the much safer first stage of gallery driving. Thirty-three of these cases were due to misadventure and thirty-eight to the fault of deceased, a fence being crossed, generally to rob pillars unlawfully, in 21 of them. The remaining 13 were however preventable. Eight out of 42 cases of "falls of side" occurred in the wolfram mines of Tavoy.

There were 7 accidents from explosives, causing 9 deaths. In 4 cases gunpowder was ignited on the surface and in 3 cases this occurred when the gunpowder was put out to dry. In one of such cases the management attributed the explosion to the heat of the sun. The Chief Inspector of Explosives is of opinion that this is impossible. He points out that the effect of the sun is to make the powder susceptible to ignition by the slightest friction or spark, the former of which can be caused by some movement or gathering up of the powder after drying. Cases also have occurred, with too great frequency, of explosions of gunpowder in miners' dwellings. While high explosives and detonators are almost invariably treated with caution, sufficient care does not appear in some cases to be exercised in the handling and custody of powder, from the time it is given out at the magazine to when it is taken underground. The wording in the rule under the Mines Act on the subject "it shall not be taken into the mine except in secure cases or canisters, etc." should be enforced from the time the gunpowder is given out from the magazine.

There were 3 fatal explosions of firedamp. Two caused 1 death in each case, but by the third 10 lives were lost. The number of accidents in shafts and by haulage, the next most numerous of underground accidents, increased slightly. There was, however, a considerable increase in accidents on the surface. These numbered 30 as compared with 18 last year and the Tavoy District was responsible for 13 of them.

Electrocution was the cause in three accidents, resulting in one death in each case. This is the same number as in the preceding year. Inefficient earthing was the cause of two of them. The installation of electricity in mines in India is increasing rapidly, and this increase is likely to be still more marked, now that there are more facilities for obtaining materials from overseas.

The death-rate per thousand persons employed was 1·02, while that of the preceding five years was 1·04. At coal mines only, these figures were 1·12 and 1·16, and at mines other than coal ·75 and ·70. At coal mines in England during the ten years ending with and including 1916, the death-rate per thousand persons employed varied from 1·08 (lowest) to 1·69 (highest).

The death-rate per million tons raised at coal mines only was 9·93, while that of the preceding five years was 10·18. At coal mines in England, during the ten years ending with and including 1916, the death-rate per million tons raised varied from 4·31 (lowest) to 6·37 (highest).

Of the 243 persons killed, 211 were males and 32 were females.

The deaths occurring in each class of mines were as follows:—

One hundred and ninety-seven in coal mines, 27 in wolfram mines, 8 in manganese mines, 3 in mica mines, 2 each in tin, salt and gold mines and 1 each in slate and copper mines.

Twelve persons lost their lives by explosion of gas, 70 by falls of roof, 56 by falls of side, 21 in shafts, 9 by explosives, 6 by irruption of water or falling

into water, 22 by haulage, 16 by other accidents underground and 31 on the surface.

A list of these accidents appears in Appendix II, Table 1. In addition to these there were 43 other accidents, causing the death of 53 persons. These also appear in Appendix II, Table 1, but are listed separately, a reason being given in each case for their exclusion from the statistical tables.

In the Bengal and Bihar and Orissa coal mines, where most of the statistical accidents occur, there were 175 deaths compared with 118 in 1917.

Each accident is described briefly in Appendix II, Table 1, but the following are reported on at greater length. The numbers refer to the numbers in the Appendix.

EXPLOSIONS OF FIRE-DAMP.

Bengal Coal Company, Limited's Sitalpur Coal Mine.

This accident, which fortunately resulted in no loss of life or other casualty, must be classed as one of the most extraordinary in the history of coal mining. It is illustrated by Plates A and B.

A shaft No. 3 had recently been sunk to the Sanctoria seam, which it reached at a depth of 818 feet. It had been fitted with two permanent cages, with wire rope guides. The diameter of the shaft is 16 feet.

The work of driving out in the seam had been commenced, the chief drive being one to connect with another shaft (No. 2), which had been sunk many years ago to the Dishergarh seam, which lies at a depth of 383 feet and with which No. 3 shaft is also connected, and which was being deepened to the Sanctoria seam to ventilate and form a second outlet for the new workings of No. 3 shaft.

From the commencement of driving, gas was met with, and, although temporary arrangements for ventilation were made, by means of a Root's blower, put behind a stopping in a landing in the Dishergarh seam, a $\frac{1}{8}$-inch cap was indicated on the safety lamp daily. Later, more gas was met with and the quantity increased to such an extent that it was frequently necessary to withdraw the persons from the mine. At length underground work was restricted to the driving of the connection to No. 2 pit and all available ventilation was concentrated to this drive. Even under these conditions the gas was so strong as to necessitate the withdrawal of the work persons from time to time. Five days before the accident more gas still was encountered, all underground work was stopped and no one was allowed to go down the shaft.

No. 3 shaft then filled with gas to the top, although the Root's blower was kept at work. The manager stated that he could smell the gas in the open air at the top of the shaft.

Five days afterwards at 1-30 P.M., while a thunderstorm was passing over the colliery, a loud report was heard. The manager came out of his house. He noticed that No. 3 shaft head frame was damaged and went to see what had occurred. His description of what he found is as follows:—"I saw two of the corrugated sheets hanging up in the head gear and the iron ladder twisted about. I went to the pit top and found nobody there. I saw that the 'bell box' girders were displaced. After examining the pit bank, I found the flooring was blown out of place on the west side. Two tubs were lying on the ground 14 feet below the bank and the south cage was jammed in the 'keps.' I then formed an opinion that an explosion had occurred in the mine."

The conditions above described can be realised by a reference to the photographs on Plate A. The wrecked pit top and jammed cage are shown in Photo. No. 1. It should be noted that the other cage was at the bottom of the shaft, with the winding rope stretched down. The tub shown in Photo. No. 2 was blown from the pit bank and landed on the ground level, which is 14 feet below the bank, fifty feet away. A corrugated sheet was similarly hurled, being dashed against a wall, in which it made the hole shown in Photo. No. 3.

It was evident that an explosion had occurred in the mine and the management at once endeavoured to ascertain the cause. They satisfied themselves that no fire had been lit on the pit bank and could find no evidence of anyone having gone near the top of the shaft with a light.

When the winding rope of the north cage was examined, it was discovered that in two places, at 228 feet and 278 feet from the surface, respectively, the rope had been rent. Many of the wires were broken and the points were fused. The condition of the rope at 278 feet is shown in Plate B, Photo. No. 1.

There is no doubt that lightning discharges had occurred at these points between the rope and the side of the shaft, and had exploded the fire-damp in the shaft. This explosion of fire-damp caused the wreckage at the top of the shaft.

The distance from the winding rope to the side of the shaft was 5 feet 4 inches. Some of the guides were nearer to the side than the winding rope. They were bolted in the usual manner from the iron headframe at the top of the shaft, while the winding rope passed over the pulley wheels to the winding engine. This particular winding engine was electrically driven. The engine was not damaged and two persons who were in the engine house not injured in any way.

No. 3.—The Equitable Coal Company, Limited's Dishergarh Coal Mine.

This explosion, by which 10 lives were lost and 4 other persons were injured by burns, occurred in the Sanctoria seam, and in the workings of No. 3 pit, which is 465 feet deep. The Dishergarh seam has been worked above it at a depth of 115 feet.

Two plans are attached to illustrate this report. Plan A shows the general outline of the workings in this portion of the mine and the scheme of ventilation. The place where the explosion occurred is shown by a black ring on plan A and is shown in detail on plan B.

The Local Government ordered an inquiry under Section 18 of the Indian Mines Act into the circumstances of this accident and such inquiry was duly held by the Collector of Burdwan, with the Chief Inspector of Mines in India and Mr. T. H. Ward, Mining Engineer, as Assessors. A reference is made to their findings hereinafter.

Until shortly before the explosion, No. 3 Pit main east level had been stopped off immediately to the east of the main dip. It was, however, decided to win the pillars lying to the rise of the level. With this idea in view, the stopping was broken down, and arrangements were being made for a new "Jig" road to the rise and for ventilating the rise workings.

It will be seen from Plan A that there were ventilation stoppings along the dip side of the main east level, except at the two dip galleries, close to where the explosion occurred. In order to conserve all the available air for the ventilation of the new rise district, it was necessary to build a stopping in each of these two galleries and stone stoppings, as shown in plan and in section on Plan B, were being built when the explosion occurred, fourteen persons being employed at this work. They all used naked lights.

Attention is now drawn to the goaf lying immediately to the dip of these two stoppings. It was proved in evidence that, while some of these persons were up in the goaf, getting stones for the building of the stoppings, gas was ignited at the naked light of one of them, at the place marked with a black cross on both plans. At this place there was an opening into the goaf, similar to those shown in the sections on Plan B. All fourteen were burnt, with the result, as stated, that ten of them died.

The explosion was local in its effect and there were no signs of force or of coked coal dust.

The explosion occurred at 9 A.M. on a Monday morning. The gang building the stoppings commenced this work on the morning of the previous day. It was established that no test for gas in the goaf was made before the work was commenced on Sunday morning and it is more than doubtful that this gang was visited at all during that day by an official. It is certain that none

of the European officials went there. On the Monday morning, about an hour before the accident, the European overman visited the spot. He has affirmed that he tested for gas with a safety lamp. The thoroughness of his test may be gauged by the occurrence of the explosion an hour afterwards.

Explosions of gas occurred at Dishergarh colliery in 1910, 1915 and 1916, though not in the Sanctoria seam, in which seam, however, gas was not unknown, and from 1905 to the present date there appear to have been several changes in the system of lighting the colliery. After the explosion in 1916, by which 14 persons were killed, safety lamps were reintroduced throughout the colliery and this system was in force until January 1918, when, at the request of the manager, the agent sanctioned the lighting of the whole of the Sanctoria seam with naked lights and this was continued, except in advance drivings where safety lamps were used as a precautionary measure, until the occurrence of the explosion under report.

The summary of the finding of the Court of Inquiry was that the use of naked lights on the day of the explosion did not constitute a breach of the rule under the Indian Mines Act on the subject of the use of safety lamps, but that, in view of the past history of the colliery, the introduction of naked lights in January 1918 in the Sanctoria seam was a grave error of judgment on the part of the management, that the direct cause of the explosion was the want of a thorough examination for gas in the goaf in which the explosion occurred and that there was slackness generally regarding examinations for gas in the Sanctoria seam and reporting thereon.

The colliery is now worked with safety lamps throughout.

FALLS OF ROOF.

No. 7.—The Nowagarh Coal Company, Limited's Katras Coal Mine.

In this case miners were getting stones from a goaf for building material underground. A heavy fall of roof took place in the goaf and one man was killed. In accordance with the rules, the goaf was fenced off, but the place where this man received his injuries was well inside the fence and it appeared to be a practice at this colliery to send workmen beyond the fences to collect stones. It was contended that an official should have been present, but these men were not being supervised.

Accidents due to persons going into goaves are not infrequent and to send miners to such places is to risk their lives, a risk which no amount of immediate supervision can minimise to any extent. When falls occur in goaves, they often do so without warning.

FALLS OF SIDE.

No. 101.—The Bansjora Coal Company, Limited's Bansjora Coal Mine.

A pillar of coal, 24 feet high, was being won from the top downwards and a cut 6 feet wide had been taken along one side of it, just under the roof. A piece of coal broke away from the side and one man, in trying to avoid it, jumped backwards and fell down the 18 feet to the floor, receiving injuries from which he died.

To start a high pillar with a cut along the side under the roof, as in this case, is not a safe operation. It is much better to drive a narrow road, just under the roof, right through the middle of the pillar. This road forms a platform, from which subsequent operations may be undertaken.

No. 67.—The Reliance Coal Company, Limited's Charanpur Coal Mine.

In this case a pillar, 14 feet high, was being won, the system being to undercut the coal near the floor and then let the roof coal fall. The undercutting had been taken 5 feet in and the only support consisted of 3 or 4 vertical props. A large piece of roof coal fell from between two slips, swaying

out the props, and killed one of the miners. It has been pointed out before that when pillars are being got in this way, it is not sufficient to support the top coal with vertical props only. Unless diagonal struts are added, there is always danger of a big collapse.

Undercutting pillars in course of extraction is not to be recommended in Indian mines. The miners cannot be relied upon to carry out the work without bringing about dangerous conditions. Wherever it is possible to do so, the sides of the pillars should be kept vertical, so as to minimise the possibility of accidents from falls of overhanging coal.

IN SHAFTS—OVERWINDING.

No. 114.—The Tata Iron and Steel Company, Limited's Malkera-Choitodih Coal Mine.

In the report for 1917 an account was given of an overwind at this mine, due to the partial failure of an overwinding and overspeed gear, which was out of adjustment. During the year under report a similar accident occurred at another shaft at this mine except that the gear was by a different maker to that of the one which caused the previous accident. In the more recent case one man was being lowered in one cage, while another man was being raised in the other. An overwind occurred, the gear came into action too late and both men were killed. It is essential that these complicated devices should be kept in perfect adjustment. After this accident another Engineer was appointed. Weekly tests are now made and the results recorded. The Agent of the colliery has reported that on two occasions, since the date of this accident, the device has been automatically brought into action and prevented serious consequences.

EXPLOSIVES.

No. 138.—The Bengal Coal Company, Limited's Banksimula Coal Mine.

In this accident three persons were fatally burnt by an explosion of gunpowder. It was the practice at this colliery for the shotfirers to be supplied by the powder manufacturer with loose powder, which they themselves made into cartridges in or about their houses.

The deceased persons were evidently manufacturing cartridges within a hut in which a fire was burning. The powder became ignited, exploded and burnt them with fatal results.

Accidents of this kind are frequent and it is to be regretted that more careful supervision of the manufacture of gunpowder into cartridges is not exercised.

Since the accident the Agent of the colliery has issued standing orders to the effect that no loose powder is to be issued to miners or shotfirers for the purpose of making cartridges. The powder manufacturer is to supply the cartridges ready for use in the mine, and no cartridges are to be taken to, or stored in, any dwellings on the colliery.

Rules 32 and 34 of Government of India Notification No. 4012-33, dated the 6th June 1914, made under the Indian Explosives Act seem to indicate clearly that the preparation of blasting charges should be done by the licensee only, in a special workshop only and after due notice to the licensing authority.

IRRUPTION OF WATER.

No. 139.—The East Indian Coal Company, Limited's Kendwadih Coal Mine.

This accident was due to a large volume of water bursting an embankment on the surface during very heavy rain and flooding a mine through subsidences due to goafing operations, with the result that two women and the child of one of them were drowned. There were 155 persons at work in the mine, some of whom narrowly escaped.

This report is illustrated by Plan C. The goafing was commenced about 15 months before the accident and several subsidences to the surface had taken place. The seam is No. 12 and is 12 feet thick. Fourteen feet below it, and connected to it by several drifts, is No. 11 seam, which is 18 feet thick and which has also been extensively worked.

The accident happened shortly after midnight. It was a very stormy night. Rain had commenced falling at about 9 P.M. and by the morning local rain gauges showed a downfall of 7 inches. Of this amount it was estimated that 5 inches fell between 9 P.M. and midnight.

The surface of the north of the goafed area forms the natural drainage of a large extent of country, and, in order to protect the workings, the embankment and drain shown on the plan had been constructed some two years before the accident. The embankment successfully withstood any effects of heavy rain in 1917. Unfortunately the rain on the night of the accident proved too much for it. The embankment was scoured out at the point shown on the plan. As will be seen, this is where the water from two directions met. The result was that the embankment was finally breached at this point. The fact that such a large volume of water rushed suddenly into the mine is fair proof that there was a definite breach of the embankment and that it was not gradually scoured from the top downwards.

The embankment once breached, the water immediately overspread the surface of the goafed area. Its chief entrance into the mine appears to have been at the point shown on the plan.

With the exception of the three deceased and a boy who was afterwards rescued, the miners in both seams escaped through the rise workings and reached the surface through No. 6 Pit.

The persons working in the extreme dip workings of 12 and 11 seams owed their rescue to the action of Hari Manjhi, the Sirdar in charge. He happened to be passing near No. 1 Pit bottom (in No. 11 seam) and, hearing an unusual sound, went to the shaft where he found a large flow of water falling down the shaft from No. 12 seam. He promptly got his workpeople out through No. 11 seam rise workings and No. 6 Pit. The Colliery Company made him a presentation in recognition of his conduct.

The three deceased and the boy were working in No. 12 seam at the point indicated on the plan. The water did not actually flow down this gallery, but on hearing a noise they fled, and, unfortunately fled down into the dip workings, where the three deceased were eventually engulfed. Their bodies were afterwards found at the places shown on the plan. At the place where they were working, floor coal was being cut. The floor of the rise gallery had not been cut and if they had clambered into this gallery over the "bench" of uncut floor coal, they would have been saved.

Five women working in an adjoining gallery to this one also fled, on hearing the noise of the water. Fortunately for them, they fled in the right direction and gained the rise tram level.

The rescued boy had a most fortunate escape. He was found against a fencing in the Main West level of No. 1 pit, in No. 12 seam. He had evidently turned into this level. The fencing had prevented him being swept down the shaft and he was practically uninjured.

The danger of low lying land in proximity to goafed workings or to galleries driven close to the surface has been recognised for many years and much has been done by the management of various collieries to minimise it. The occurrence of this accident should once more draw their attention to it.

HAULAGE.

No. 144.—The Tata Iron and Steel Company, Limited's Malkera-Choitodih Coal Mine.

In this case a miner, who was lying asleep at the foot of an underground haulage plane, was run over by a runaway tub and killed. Inquiry disclosed

the fact that the runaway was due to the opening out of a D link coupling. This coupling was of an unsuitable character. The pin used to keep the bolt in its place was not attached to the coupling and there was, therefore, full opportunity for it not to be inserted. It could not be found after the accident It was also found that the "drag" was useless. The upper part was too short, with the result that the prongs hung vertically and were unable to come into action.

No. 156.—The Tetulmuri Collieries, Limited's Tetulmuri Coal Mine.

Whilst a train of 8 empty tubs was being lowered down a haulage slope, the rope broke and the tubs ran wild, with the result that a man was run over and killed.

The rope was originally $\frac{7}{8}$-inch diameter and had been at work at various inclines for $3\frac{1}{2}$ years. It was found on inquiry that it was so worn that the average diameter had been reduced to $\frac{1}{2}$-inch. At the point where it broke there were only 26 wires instead of the full number of 42. These wires were worn and brittle. According to the evidence of various persons the rope had broken from three to six times during the previous three months, and the working load had been reduced to 3 loaded and 8 empty tubs.

On the day before the accident the manager found a bad place in the rope and by his order the rope was cut, about 2 feet of it removed and a pair of sockets put on. The break which caused the accident took place a few feet from the sockets.

The Inspector of Mines, after examining the rope, gave it as his opinion that it was in such a bad condition that it should not have been used, or, if it was used, the load should have been not more than one loaded and three empty tubs.

There was admittedly a great shortage of ropes throughout the year, but this could not be held to justify the use of a rope to the extent of endangering life.

BY UNDERGROUND MACHINERY.

No. 165.—The Benakuri Coal Company, Limited's Benakuri Coal Mine.

An underground engine-driver had paid out the rope of his engine with the result that some coils of rope were loose on the drum. Whilst endeavouring to straighten and tighten these coils he was carried suddenly on to the drum. At the same time the loose coils of rope brought down on him some corrugated iron sheets which formed a protection board over the engine.

There is no doubt that in some way the engine was accidentally started or accelerated.

On inquiry the condition of the engine was found to be as follows:—The throttle lever, which was a vertical one, was kept back in the shut position by a piece of string. It was so loose that it could be removed by a touch of the hand, and when it was pushed forward and the throttle was full open, the handle of the lever was only one inch from the plate of the drum.

SUNDRIES UNDERGROUND.

No. 176.—The Tata Iron and Steel Company, Limited's Malkera-Choitodih Coal Mine.

This accident, which resulted in a man being electrocuted, occurred at the bottom of a shaft, which was lighted electrically. The current was supplied at 220 volts, by a lead covered cable, carried by a pair of galvanised wire ropes, suspended from planking on the surface. The man who was killed touched the cable accidentally, fell across it and remained there until removed.

The shaft had just been dewatered, after being flooded for some months. On the morning of the accident the electrician fitted the shaft bottom with

some lights and then reported to the manager that there was a slight leakage of current. The manager told him to cut out the defective part of the cable and he reported about an hour later that he had done so. The manager then went down the shaft and, on examining the cable, felt a slight shock and stationed a man to keep persons away from the cable. He has stated that he then told the electrician to replace the defective cable at once. The latter has denied that he was told to do this at once and has stated that he meant to do it in the afternoon.

The accident was inquired into and reported upon by the Electric Inspector to the Local Government, who considered that the accident was due to the inefficient earthing of the cable sheathing or of the wire supporting ropes, to which the cable was tied at frequent intervals by metal binding wire.

In view of the Electric Inspector's report, a prosecution was instituted against the manager, as detailed in Section IV of the report.

NON-STATISTICAL.

No. 23.—The Burrakar Coal Company, Limited's Kantapahari Coal Mine.

This accident, whereby 5 persons were killed and 6 injured, was due to an explosion at midnight in a railway oil tank wagon, which was being unloaded by colliery work people at a colliery siding. It was inquired into by the Inspector of Explosives, who formed the opinion that the explosion was caused by some one forcibly opening the man-hole cover and introducing a light of some description in order to find how much oil remained in the tank. There is little doubt that this person was one of the deceased. The work was being carried out under the supervision of the Storekeeper, and a prosecution was initiated by the Civil authorities against him and the manager of the colliery, as detailed in Section IV of the report.

Section IV.—Prosecutions and additions to the Act.

PROSECUTIONS.

Judgment was given in the following prosecutions during the year. Unless otherwise stated "rule" means a rule under Notification No. 864-68—20, dated the 10th March 1904, being rules for the working of coal mines.

The owner of Babu Bhairab Chandra Pandey's Baromeshia coal mine was prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (*b*), for not submitting an annual return within the prescribed date. He was fined Rs. 50; in default one month's simple imprisonment.

The owners of the M. V. A. Coal Concern's Joyrampur coal mine were prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (*b*), for not submitting an annual return within the prescribed date. The Concern was fined Rs. 100.

The owners of the Lohapiti Coal Company, Limited's Lohapiti coal mine were prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (*b*), for not submitting an annual return within the prescribed date. The Company was fined Rs. 100.

The owner of the Royal Bengal Coal Company's Kusumkanali coal mine was prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (*b*), for not submitting an annual return within the prescribed date. The case was withdrawn as the accused could not be traced, and could not, therefore, be served with the summons.

The owner of Babu J. N. Mukerjee's North Ekra coal mine was prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (*b*), for not submitting an annual return

within the prescribed date. The Court held that "in the altered state of his connection with the colliery" it was not possible for accused to submit the return. He was, therefore, acquitted.

The owner of Mussammat Moola Bibi's Suranga coal mine was prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (*b*), for not submitting an annual return within the prescribed date She was fined Rs. 20; in default one month's simple imprisonment.

The owners of the Tisra Coal Company, Limited's Tisra coal mine were prosecuted under Rule 1 of Notification No. 5072-113, dated the 1st July 1916, read with Section 22(2) (*c*), for submitting an incorrect annual return. They were fined Rs. 25.

The owner of Babu Gopal Chandra Bhattacharya's South Barora coal mine was prosecuted under Rules 1 and 11, read with Sections 22(3) (*e*) and 22(2) (*c*), for neglecting to provide a second outlet to the mine and for producing an inaccurate plan showing the position of the alleged second outlet. He was fined Rs. 100 on the first charge and Rs. 50 on the second; in default one month's simple imprisonment on each charge.

The manager of Messrs. P. Mookerji and Company's New Pipratand coal mine was prosecuted under Rule 3, read with Section 22(1) (*e*), for not keeping secure the sides of an incline. He was fined Rs. 50; in default one month's simple imprisonment.

The owner and agent, manager, overman and sirdar of the Laxmi Colliery Company's Parbad Pahari coal mine were prosecuted under Rule 3, read with Section 22(1)(*e*), for not keeping safe the sides of the quarry. They were fined Rs. 25, Rs. 50, Rs. 50 and Rs. 10, respectively.

The owners and manager of Munhsi Jafar Yusuf and Sons' Kapasara coal mine were prosecuted under Rule 7, read with Section 22(3)(*e*), for not fencing off disused working places in the mine. The owners were acquitted. The manager was fined Rs. 50; in default a fortnight's simple imprisonment.

The owners, agent and manager of the North Angarpatra Coal Company's Kasalpur coal mine were prosecuted under Rule 12, read with Section 22(2)(*b*), for not submitting a plan of an abandoned mine. The owners and manager were fined Rs. 30 each and the agent Rs. 50; in default two weeks' simple imprisonment.

The owner and manager of Babu Dyabhai Trivedi's Rajpura coal mine were prosecuted under Rule 19, read with Section 22(3)(*e*), for not keeping a quarry properly fenced. He was fined Rs. 50; in default one week's simple imprisonment.

The owner of Babu Upendra Nath Mukherji's Rajpura coal mine was prosecuted under Rule 19, read with Section 22(3)(*e*), for not keeping the quarry and openings to the mine properly fenced. He was fined Rs. 100; in default one month's simple imprisonment.

The owner of Babu Lalu Bhai Patel's Rajpura coal mine was prosecuted under Rule 19, read with Section 22(3)(*e*), for not keeping disused portions of the mine properly fenced. He was fined Rs. 50; in default one month's simple imprisonment.

The owners (three) and manager of Messrs. R. M. Paul and Others' Rajpura coal mine were prosecuted under Rule 19, read with Section 22(3)(*e*), for not keeping the quarry properly fenced. The manager was fined Rs. 30; in default one month's simple imprisonment. The case against the owners was dismissed.

The owner of Babu Umesh Chandra Mukherji's Borachack coal mine was prosecuted under Rule 7, read with Section 22(3)(*e*), for not fencing off disused working places in the mine. He was fined Rs. 75.

The owner of the South Ghusik Coal Company's New Muslia coal mine was prosecuted under Rule 12, read with Section 22(2)(*b*), for not furnishing a plan of a discontinued mine. He was fined Rs. 15.

The agent and manager of Babu F. K. Dutt's Mouthdih coal mine were prosecuted under Rule 19, read with Section 22(3)(*e*), for not properly fencing the shafts and quarries in the mine. They were each fined Rs. 50.

The manager of Quan Cheng Tock's Anyapya wolfram mine was prosecuted under Rule 14 of the Mines Act Rules, Burma (1917), read with Section 22(.)(*e*), for permitting shots to be fired by an incompetent person. The case arose out of a "serious" accident. He was fined Rs. 25.

The manager of the Tavoy Concessions, Limited's Kalonta wolfram mine was prosecuted under Rule 14 of the Mines Act Rules, Burma (1917), read with Section 22(1)(*e*), for permitting shots to be fired by an incompetent person. The case arose out of a "serious" accident. He was fined Rs. 25.

The manager of the Tata Iron and Steel Company, Limited's Malkera coal mine was prosecuted under Rules 40 and 44 of the Indian Electricity Act. The case arose out of "fatal" accident No. 176. He was fined Rs 100.

The manager of the Equitable Coal Company, Limited's Jamuria coal mine was prosecuted under Rule 20, read with Section 22(1)(*e*), for not fencing the pulley on the "tension bogie" on an endless haulage system in the mine. The case arose out of non-statistical "fatal" accident No. 14. He was fined Rs. 100.

The manager of the Burrakar Coal Company, Limited's Kantapahari coal mine was prosecuted under Section 15(*c*) of the Indian Petroleum Act. The case arose out of non-statistical "fatal" accident No. 23. He was fined Rs. 10. In connection with the same case the Storekeeper at the colliery was prosecuted for a breach of Section 285 of the Indian Penal Code and was fined Rs. 100; in default one month's rigorous imprisonment.

Information was received regarding the following judgments in prosecutions initiated by managers against employees for breaches of the Special Rules made under Section 21 of the Act.

A coal cutter at J. Boisogomoff and Company's Radhaballabpur coal mine was prosecuted under Rules 5, 7, 15 and 21 read with Section 22(1)(*e*), for entering a disused portion of the mine, with a companion, and cutting coal there. The case arose out of "fatal" accident No. 13. He was sentenced to one month's rigorous imprisonment.

A fitter at Messrs. D. N. Ghosh and Brother's Tetturia coal mine was prosecuted under Rule 4 read with Section 22(3)(*e*), for absenting himself from duty without leave. He was fined Rs. 10; in default 14 days' simple imprisonment.

A fitter at the Bengal Coal Company, Limited's Sodepur coal mine was prosecuted under Rule 5, read with Section 22(1)(*e*) for being underground in a state of intoxication. He was acquitted under Section 247, Criminal Procedure Code, as the complainant (manager) did not appear to prosecute.

Information was received of 4 other cases, which could not be tried, as the accused either absconded or died.

Three permits to manage small mines were cancelled during the year on account of mismanagement disclosed by inspection.

ADDITIONS TO THE ACT.

During the year Special Rules under Section 21 of the Act were established at 32 coal mines, making a total of 500.

The Governments of Bengal and of Bihar and Orissa framed rules under Section 20 of the Act for providing adequate acquaintance on the part of coal mine officials with the number of persons working in a mine at any given time. The Government Notification publishing these rules appears in Appendix IV, Statement No. 7.

Section V.—General Remarks.

PRESENTATION OF EDWARD MEDALS.

In the last report an account was given of an accident at the Burrakar Coal Company, Limited's Gourandih coal mine, and of the rescue of two miners by Mr. C. H. Whiffen, the assistant manager, Bideshi Kol, a sirdar, and four workmen. His Majesty the King-Emperor was pleased to award the Edward medal in silver to Mr. Whiffen and to Bideshi Kol, and the same medal in bronze to each of the four workmen, Rupai Kol, Suku Kol, Jadu Kol and Budhu Kol. These medals were presented to them by His Excellency the Viceroy at Howrah Station on the 10th December 1918.

HEALTH AND SANITATION.

The Asansol Mines Board of Health held 9 ordinary and 3 special meetings. There were 3 changes in the personnel of the unofficial members. Compulsory notification of changes in the names of collieries or of their owners, agents and managers was brought into force. A general order was issued, prohibiting the burning or burial of corpses at places other than the 78 burning ghats and 17 burial grounds maintained by the Board or the 183 burning ghats approved by them. Lectures on sanitation and hygiene in the collieries and villages were continued and were greatly appreciated.

An investigation into the existence of hook-worm disease amongst colliery labour and the agricultural population of the settlement was carried out. It was found that at least 66 per cent. of the colliery labour, and 39 per cent. of the agricultural population were affected with the disease. An anti-malaria survey of the settlement was commenced.

There were 442 cases of cholera and 225 deaths, the figures for small-pox being 80 and 7, as compared with 226 cases of cholera and 138 deaths and 320 cases of small-pox and 92 deaths in 1917. Influenza broke out in the mining settlement during the latter part of the year. The deaths reported were 527 and those from pneumonia, most of which were probably due to influenza, were 681.

The Governor in Council, in a letter addressed to the Chief Inspector of Mines in India, desired to record his satisfaction at the success attained by the sanitary measures introduced by the Board for promoting the general health of the mining area.

The Jharia Mines Board of Health held 18 ordinary and 5 special meetings. There were two changes in the personnel of the unofficial members. The Epidemic Diseases Act remained in force during the whole year and was administered by the Chief Sanitary Officer, who continued to be the authority appointed under the Act. The regulations were extended to make provision for the prevention of plague. The vaccination staff was double.

There were 639 cases of cholera and 238 deaths, the figures for small-pox being 74 and 5, as compared with 698 cases of cholera and 344 deaths and 148 cases of small-pox and 4 deaths in 1917. The death-rate from influenza was very great, but no actual figures are available.

The Lieutenant-Governor in Council recorded his appreciation of the good work done by the members of the Board and by the Chief Sanitary Officer.

The following deaths from influenza at mines have also been reported:—Thirteen hundred and ninety-five deaths in the manganese mines of the Central Provinces, 50 deaths in the Anantapur gold mines, 221 deaths in the coalfields outside Bengal and Bihar and Orissa and 165 deaths at the Shivrajpur manganese mines in the Bombay Presidency.

There were 109 deaths from cholera in the Bihar and Orissa mica fields.

The rainfall in the Jharia coalfield was 43·63 inches, in the Giridih coalfield it was 35·70 inches, in the Raniganj coalfield it was 33·11 inches and at the new Jharia Water Works it was 47·49 inches. The figures for 1917 were 72·09, 69·16, 71·9 and 72·87 inches, respectively.

MINING EDUCATION.

The Professor of Mining at Sibpur College has reported that during the session 1916-17 there were six students in the Senior course, of whom five gained diplomas. In the Junior course 24 were enrolled at the beginning of the session, 12 sat for the examination and 10 qualified for promotion to the Senior course. At the commencement of the session 1917-18 there were 10 students enrolled in the Senior course and 20 in the Junior course. Of these, 2 in the Senior and 2 in the Junior course were special students. In the annual examination 7 students gained diplomas, while 12 qualified for promotion from the Junior to the Senior course.

The annual mining camp was pitched at Baneadih in the Giridih coalfield. Forty-five students were present. The usual courses of practical work were undertaken. Seven special survey students attended.

A special experimental plant in connection with the mining department of the college has recently been erected to test the coking property of coal and estimate the tar, ammonia and other bye-product contents of the coal examined.

The Mining Education Advisory Board held 4 meetings during the year. The Bengal Government sanctioned a scheme providing for qualified students of schools of land surveying being trained in mine surveying. The Board adopted certain improvements in the scheme of lectures delivered by the Mining Instructor and ordered the levy of a fee of Rs. 5 from each candidate for attendance during the session. The average attendance at these lectures was 33·9, as compared with 23·3 in the previous year.

The sessional examination was held in May, the examiners being Messrs. H. Lancaster, Inspector of Mines in India, and E. H. Roberton, Professor of Sibpur College. Forty-three candidates sat for examination and 26 passed. Mr. V. C. Durham obtained the highest marks. The Examiners reported that the papers on the average were good, though not up to last year's standard, that the sketching in particular had fallen off and that some of the answers were unnecessarily long.

The Bengali and Hindi lectures were also delivered.

BOARD OF EXAMINERS FOR COAL MINE MANAGERS' CERTIFICATES.

The personnel of the Board remained unchanged. Mr. T. H. Ward's term of office of three years expired on the 2nd May. He was pleased to offer his services for a further term and was reappointed.

Five meetings were held during the year.

One first class Indian certificate of competency was granted in lieu of an English certificate, and nine first class, and seven second class certificates of service were granted during the year.

At the examination for Colliery Managers' Certificates of Competency, held at Dhanbad on the 20th, 21st and 22nd February 1918, sixty-three candidates sat for first class, and seventy-four for second class certificates. Certificates of competency were granted to ten first class and twenty-four second class candidates.

The Examiners were Messrs. W. S. Elphinstone, J. Mackie and R. R. Simpson, Inspector of Mines, No. 1 Circle (Official Examiner and Secretary), Mr. H. Lancaster, Inspector of Mines, No. 2 Circle, was Assistant Secretary.

During the year the Government of India were pleased to direct that in future there should be separate examinations, with separate examiners, for first and second class candidates.

MINING BOARDS IN BENGAL, BIHAR AND ORISSA AND THE CENTRAL PROVINCES.

The Bengal Mining Board held two meetings during the year, when the following subjects were considered:—

(1) Proposal for the appointment of a Committee composed of experts to consider and report upon the most effective and economical methods of coal extraction.

(2) Constitution of the Asansol Mines Board of Health.

The non-official members were Messrs. W. Graham and Glen George.

The Bihar and Orissa Mining Board held one meeting during the year when the following subjects were considered:—

(1) Draft rules under Section 20 of the Indian Mines Act, 1901, for providing adequate acquaintance on the part of coal mine officials with the number of persons working in a mine at any given time.

(2) Amendment of Rule 35 of the rules issued under the Bengal Mining Settlement Act, 1912.

(3) Framing of a new rule under Section 11 (2) (E) of the Bengal Mining Settlement Act, 1912, with a view to simplify the work of collecting vital and other statistics by the Jharia Mines Board of Health.

The non-official members were Messrs. T. H. Ward and R. G. M. Bathgate.

The Central Provinces Mining Board held no meeting during the year. The non-official members of the Board were Messrs. F. L. G. Simpson and H. D. Coggan.

MINING AND GEOLOGICAL INSTITUTE OF INDIA.

The total membership at the end of the year, including subscribers, was 278. In addition to the annual meeting, one ordinary meeting was held, at which papers were read and discussed and visits were paid to three mines. The field work for the preparation of the Geological map of the Jharia coalfield was continued. It was found necessary to re-survey the railways and roads and to prepare entirely new sheets. The work of the Subsidence Committee was also continued. The Government prize for the best paper during the year was awarded to Mr. E. H. Roberton for his paper on "Some Notes on the Manufacture of Fuel Briquettes." The Institute medals were awarded as follows:—

(*a*) The Gold medal to Mr. E. H. Roberton for his above mentioned paper;

(*b*) the Silver medal to Mr. Edwin J. Beer for his paper on "Notes on Rocks from Pavagarh to Dohad"; and

(*c*) the Bronze medal to Mr. C. H. McCale for his paper on "Welding Pit Guide Ropes and some Methods of Welding."

THE ASSOCIATION OF COLLIERY MANAGERS IN INDIA.

The membership of the Association increased from 190 to 196.

The Council has been engaged with questions relating to the granting of service certificates, the manufacture of gunpowder, epidemic diseases and temporary hospitals, the qualifications of colliery doctors, and the representation of the Association of Mining Board and Committees. One visit was paid to a large works in the district.

LAND ACQUISITION (MINES) ACT, 1885.

The number of original cases disposed of altogether at the end of 1918 stood at 327, nineteen of which were cases disposed of during the year.

OFFICIAL DUTIES, 1918.

Mr. G. F. Adams was Chief Inspector of Mines in India.

Mr. R. R. Simpson was Inspector of Mines, No. 1 Circle. From the 1st January to the 22nd February, he held charge of No. 2 Circle in addition to his own duties.

Mr. H. Lancaster was confirmed in his appointment of Junior Inspector of Mines and was promoted to be Inspector of Mines, No. 2 Circle, on the 23rd February.

Mr. J. Coggin Brown, Assistant Superintendent, Geological Survey of India, continued to be an Inspector of Mines for mines situated in the Tavoy District of Lower Burma.

Mr. J. J. Turnbull was a Junior Inspector of Mines. He was granted privilege leave from the 1st October to the 10th November.

The vacancy caused by the retirement of Mr. G. C. Leach was not filled during the year and the department was short-handed to the extent of one Junior Inspector.

In addition to the ordinary work, the Department continued to deal with applications for priority for the importation of machinery and plant from the United Kingdom. Three hundred and thirty cases were inquired into during the year. The personnel of the Mines Equipment Priority Committee was the same as stated in the last report.

I have the honour to be,

SIR,

Your most obedient Servant,

G. F. ADAMS,

Chief Inspector of Mines in India.

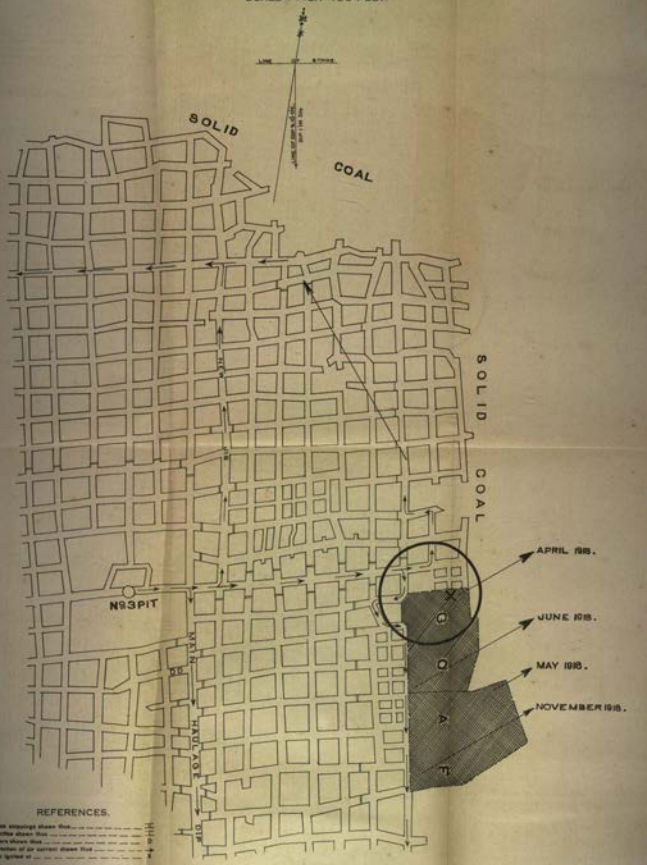
PLAN ILLUSTRATING REPORT ON

AN ACCIDENT BY EXPLOSION OF FIRE DAMP

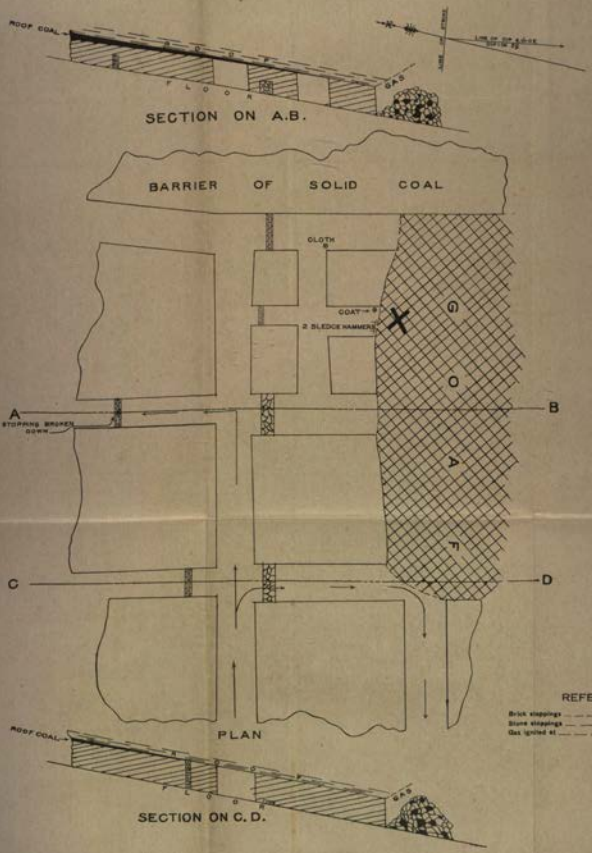
AT

THE EQUITABLE COAL Co. LTD.'S DISHERGARH MINE.

SCALE 1 INCH=100 FEET.



PLAN ILLUSTRATING REPORT ON
AN ACCIDENT BY EXPLOSION OF FIRE DAMP
AT
THE EQUITABLE COAL Co. LTD.'S DISHERGARH MINE.



LITHO BY THACKER SPINK & CO CALCUTTA.

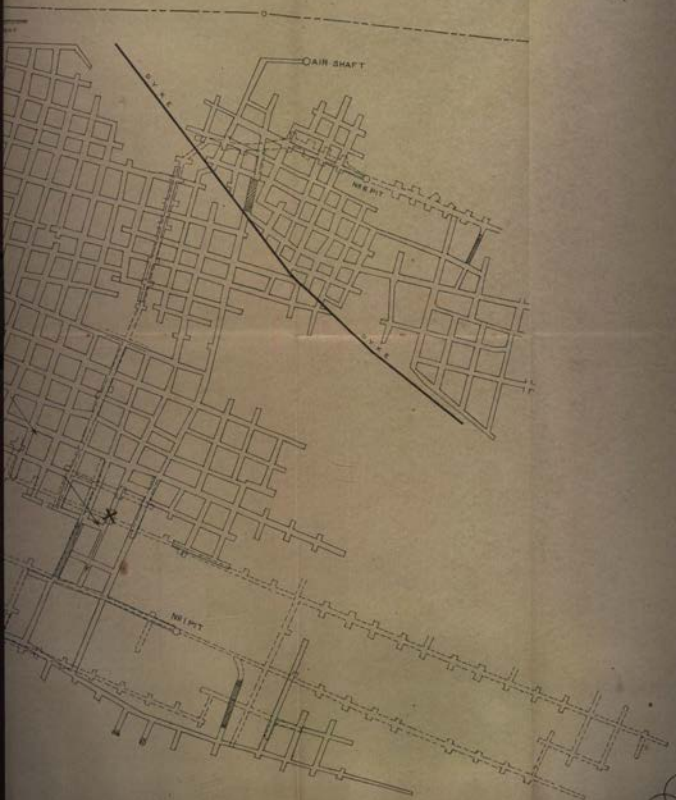
PLAN ILLUSTRATING REPORT ON

FATAL ACCIDENT BY IRRUPTION OF WATER

AT

THE EAST INDIAN COAL Co. Ltd.'s KENDWADIH MINE.

SCALE 1 INCH = 100 FEET



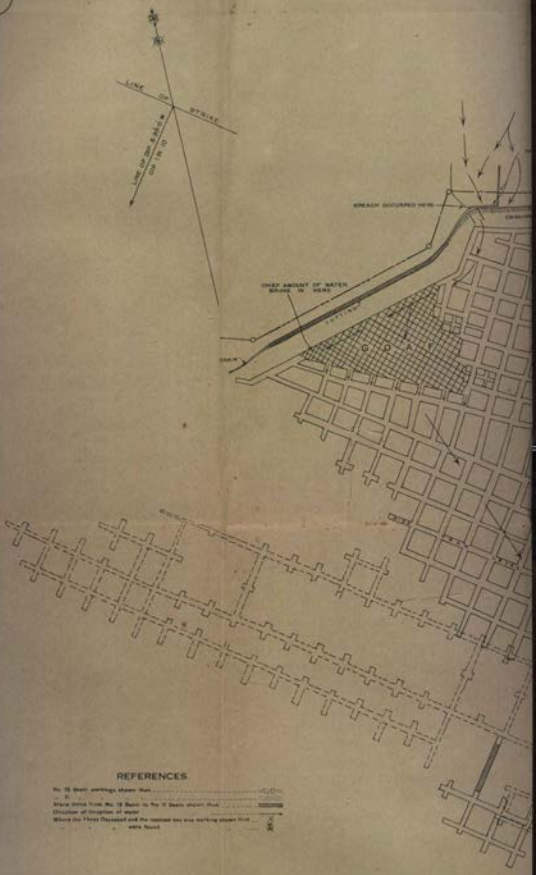

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PLATE ILLUSTRATING REPORT ON EXPLOSION OF FIRE DAMP AT THE BENGAL COAL Co., Ltd.'s SITALPUR COAL MINE.

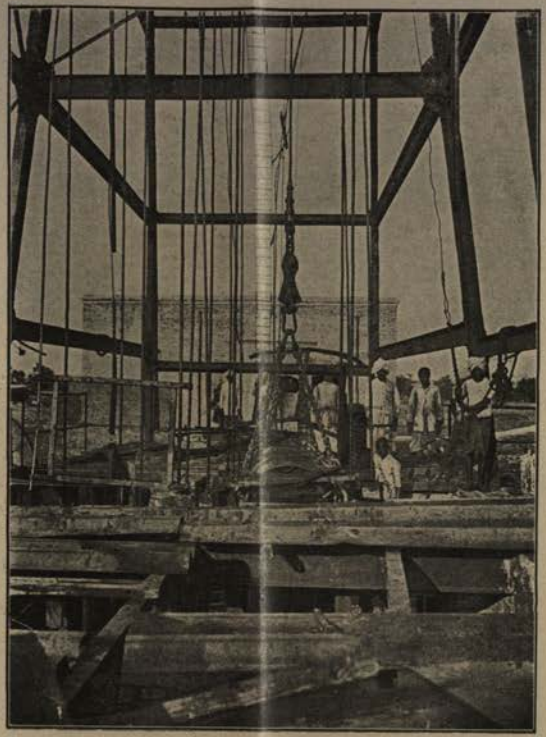

PHOTO 1

Photograph showing how pit bank was wrecked

PHOTO 2

Photograph showing tub which was hurled 50 feet

PHOTO 3

Photograph showing corrugated sheet which was hurled 50 feet

PLATE ILLUSTRATING REPORT ON EXPLOSION OF FIRE DAMP

AT

THE BENGAL COAL Co., Ltd.'s SITALPUR COAL MINE.

PHOTO 1

Photograph showing where rope was rent 278 feet from surface

APPENDIX I.

STATISTICS OF MINES AND MINERALS.

Table No. 1.

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1918.

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							A.—COAL.									
							Tons.									
Assam	Lakhimpur	6	4	2	7	11	267,749	1,586	174	...	1,760	579	203	75	857	2,617
	Naga Hills	2	...	2	1	2	24,299	162	1	1	164	179	25	2	206	370
	Sibsagar	1	...	1	1	1	1,827	31	1	...	32	34	2	...	36	68
	Total	9	4	5	9	14	293,875	1,779	176	1	1,956	792	230	77	1,099	3,055
Baluchistan	Kalat	5	...	5	...	...	4,511	57	...	...	57	21	...	...	21	78
	Loralai	1	...	1	...	...	149	15	...	...	15	5	...	...	5	20
	Quetta-Pishin	13	...	13	...	...	8,865	79	...	...	79	45	...	...	45	124
	Sibi-Khost	10	2	8	...	...	29,600	410	...	...	410	348	2	11	361	771
	Total	29	2	27	...	...	43,125	561	...	...	561	419	2	11	432	993
Bengal	Bankura, Raniganj	3	...	3	...	...	6,262	34	23	...	57	41	25	1	67	124
	Birbhum „	4	...	4	...	...	2,950	43	25	3	71	11	57	...	68	139
	Burdwan „	193	153	40	128	256	5,293,083	18,028	10,838	170	29,036	10,643	5,862	345	16,850	45,886
	Total	200	153	47	128	256	5,302,295	18,105	10,886	173	29,164	10,695	5,944	346	16,985	46,149

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1918—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							A.—COAL—*concld.* Tons.									
Bihar and Orissa	Hazaribagh: Bokaro-Ramgarh	12	2	10	1	1	541,422	2,402	1,962	48	4,412	1,282	1,506	24	2,812	7,224
	Hazaribagh: Giridih	10	4	6	10	18	846,592	4,432	1,920	3	6,355	2,259	741	2	3,002	9,357
	Hazaribagh: Jharia	5	4	1	17	18	189,212	492	291	4	787	359	264	17	640	1,427
	Manbhum: Jharia	324	167	157	165	332	10,761,848	29,372	24,178	295	53,845	21,664	10,607	1,465	33,736	87,581
	Manbhum: Raniganj	86	12	74	43	55	1,056,907	3,646	2,187	21	5,854	2,454	1,400	153	4,007	9,861
	Palamau, Daltonganj	1	1	...	...	...	31,816	282	161	42	485	248	65	50	363	848
	Sambalpur, Hingir-Rampur	3	2	1	1	1	51,038	331	180	...	511	142	88	...	230	741
	Sonthal Parganas: Jainty	4	2	2	3	4	137,464	303	388	...	691	428	204	65	697	1,388
	Sonthal Parganas: Raniganj	6	...	6	...	...	9,317	77	46	...	123	40	59	1	100	223
	Total	451	194	257	240	429	13,675,616	41,337	31,313	413	73,063	28,876	14,934	1,777	45,587	118,650
Central Provinces	Chanda, Ballarpur	5	5	...	3	5	135,375	857	164	...	1,021	627	140	13	780	1,801
	Chhindwara, Pench Valley	10	7	3	8	17	267,303	2,361	580	59	2,000	447	229	64	740	2,740
	Narsinghpur, Mohpani	1	1	...	1	3	78,792	601	325	...	926	514	68	...	582	1,508
	Yeotmal	1	1	...	...	...	...	...	...	...	...	3	...	...	3	3
	Total	17	14	3	12	25	481,470	2,819	1,069	59	3,947	1,591	437	77	2,105	6,052

North-West Frontier Province.	Hazara	1	...	1	...	...	240	7	...	...	7	5	...	...	5	12
Panjab . .	Jhelum	7	...	7	...	...	39,651	725	3	35	763	402	...	16	418	1,181
	Mianwali	2	...	2	...	...	5,152	40	...	...	40	9	...	...	9	49
	Shahpur	3	...	3	...	...	5,615	60	...	...	60	68	...	...	68	128
	TOTAL .	12	...	12	...	...	50,418	825	3	35	863	479	...	16	495	1,358
	GRAND TOTAL (COAL) FOR 1918	719	367	352	389	724	19,847,039	65,433	43,447	681	109,561	42,857	21,547	2,304	66,708	176,269
	" " OF PRECEDING YEAR	694	352	342	506	869	17,326,384	56,782	37,703	665	95,150	38,105	18,153	2,275	58,533	153,683
	DIFFERENCE .	+25	+15	+10	—117	—145	+2,520,655	+8,651	+5,744	+16	+14,411	+4,752	+3,394	+29	+8,175	+22,586
	B.—MICA.															
							Cwts.									
Bihar and Orissa . .	Bhagalpur	2	...	2	...	...	3	5	3	...	8	...	...	...	...	8
	Gaya	55	6	49	...	...	6,855	980	502	207	1,689	268	246	124	638	2,327
	Hazaribagh	425	50	375	1	1	28,836	6,079	2,578	1,209	9,866	2,601	1,651	1,311	5,563	15,429
	Manbhum	1	...	1	...	...	21	8	5	...	13	5	4	...	9	22
	Monghyr	26	12	14	...	...	8,419	1,815	223	14	2,082	378	542	430	1,350	3,432
	Sambalpur	1	...	1	...	...	86	45	95	6	146	...	...	...	...	146
	TOTAL .	510	68	442	1	1	44,220	8,962	3,406	1,436	13,804	3,252	2,443	1,865	7,560	21,364
Madras . . .	Nellore	84	9	75	54	56	6,108	1,640	902	108	2,650	402	324	174	900	3,550
	Salem	3	...	3	3	3	280	55	...	...	55	60	81	17	158	213
	TOTAL .	87	9	78	57	59	6,388	1,695	902	108	2,705	462	405	191	1,058	3,763

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1918—*contd.*

Provinces.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
							B.—MICA—*concld.* Cwts.									
Rajputana	Ajmer-Merwara	25	...	25	...	...	922	227	43	21	291	48	76	30	154	445
	Nasirabad	1	...	1	...	...	42	10	2	2	14	4	1	1	6	20
	TOTAL	26	...	26	...	...	964	237	45	23	305	52	77	31	160	465
	GRAND TOTAL (MICA) FOR 1918	623	77	546	58	60	51,572	10,894	4,353	1,567	16,814	3,766	2,925	2,087	8,778	25,592
	„ „ „ OF PRECEDING YEAR	637	72	565	48	49	35,896	7,835	4,172	1,164	13,171	3,451	2,344	1,563	7,358	20,529
	DIFFERENCE	—14	+5	—19	+10	+11	+15,676	+2,959	+181	+403	+3,643	+315	+581	+524	+1,420	+5,063
							C.—MANGANESE. Tons.									
Bombay	Panch Mahals	2	2	...	...	...	30,893	461	244	75	780	193	41	8	242	1,022
Central Provinces	Balaghat	25	...	25	...	...	180,353	2,339	2,218	189	4,736	598	380	92	1,065	5,801
	Bhandara	4	...	4	...	...	21,853	197	206	24	427	94	29	3	126	553
	Chhindwara	2	2	...	...	...	72,398	760	975	36	1,771	244	86	13	343	2,114
	Nagpur	21	1	20	...	...	107,630	1,477	1,419	15	2,911	579	481	65	1,125	4,036
	TOTAL	52	3	49	...	...	382,234	4,763	4,818	264	9,845	1,510	976	173	2,659	12,504

Madras	Vizagapatam	4	...	4	...	...	2,230	166	98	7	271	30	14	2	46	317
	GRAND TOTAL (MANGANESE) FOR 1918	58	5	53	...	...	415,357	5,390	5,160	346	10,896	1,733	1,031	183	2,947	13,843
	" " OF PRECEDING YEAR	58	2	56	40	42	497,052	5,456	10	250	10,806	1,920	1,062	190	3,172	13,978
	DIFFERENCE	...	+3	−3	−40	−42	−81,695	−66	+60	+96	+90	−187	−31	−7	−225	−135
							D.—LIMESTONE.									
							Tons.									
Central Provinces	Bilaspur	1	...	1	...	...	5,034	20	2	...	22	30	48	4	82	104
	Jabalpur, Katni	24	1	23	...	...	125,417	533	919	32	1,484	170	212	20	402	1,886
	TOTAL	25	1	24	...	...	130,451	553	921	32	1,506	200	260	24	484	1,990
Panjab	Hoshiarpur	1	...	1	...	...	1,000	20	...	...	20	40	...	...	40	60
	GRAND TOTAL (LIMESTONE) FOR 1918	26	1	25	...	...	131,451	573	921	32	1,526	240	260	24	524	2,050
	" " OF PRECEDING YEAR	32	1	31	...	...	82,340	488	807	34	1,329	208	225	35	468	1,797
	DIFFERENCE	−6	...	−6	...	...	+49,111	+84	+114	−2	+197	+32	+35	−11	+56	+253
							E.—SALT.									
							Tons.									
Panjab	Jhelum	2	1	1	1	2	136,370	392	234	54	740	71	...	..	71	811
	Mianwali	1	...	1	1	2	11,235	68	...	20	88	...	...	...	...	88
	Shahpur	1	...	1	1	1	10,908	48	27	6	81	...	...	...	...	81
	GRAND TOTAL (SALT) FOR 1918	4	1	3	3	5	158,513	508	321	80	909	71	...	...	71	980
	" " OF PRECEDING YEAR	4	1	3	...	...	152,542	579	387	72	1,038	59	...	...	59	1,097
	DIFFERENCE	...	...	...	+3	+5	+5,971	−71	−66	+8	−129	+12	...	...	+112	−117

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1918—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							F.—GEMS.									
							(a) Rubies.									
							Carats.									
	Mogok				...	...	101,637									
							(b) Sapphires.									
Burma	Mogok	3	2	1	...	...	34,949	778	...	...	778	522	...	...	522	1,300
							(c) Spinels.									
	Mogok					...	27,529									
	TOTAL	3	2	1	...	...	164,115	778	...	...	778	522	...	...	522	1,300
	GRAND TOTAL (GEMS) FOR 1918	3	2	1	...	...	**164,115**	**778**	...	...	**778**	**522**	...	...	**522**	**1,300**
	" " OF PRECEDING YEAR	2	2	...	...	...	**198,200**	**739**	...	...	**739**	**506**	...	...	**506**	**1,245**
	DIFFERENCE	+1	...	+1	...	...	**—34,085**	**+39**	...	...	**+39**	**+16**	...	...	**+16**	**+55**
							G.—SLATE.									
							Tons.									
Bihar and Orissa	Monghyr	4	...	4	...	...	1,821	97	74	15	186	29	...	...	29	215
	Gurdaspur	1	...	1	...	...	6	5	...	...	5	...	...	...	...	5
Panjab	Gurgaon	5	...	5	...	...	2,170	88	...	59	147	44	...	4	48	195
	Kangra	5	...	5	...	...	5,938	153	4	3	160	42	51	22	115	275

	TOTAL .	11	...	11	...	...	8,114	246	4	62	312	86	51	26	163	475
	GRAND TOTAL (SLATE) FOR 1918.	15	...	15	...	...	9,935	343	78	77	498	115	51	26	192	690
	" " OF PRECEDING YEAR.	13	...	13	4	4	8,731	337	30	51	418	101	61	31	193	611
	DIFFERENCE . . .	+2	...	+2	—4	—4	+1,204	+6	+48	+26	+80	+14	—10	—5	—1	+79
							H.—GOLD.									
							Ozs.									
Bihar and Orissa . .	Singhbhum . . .	1	...	1	...	...	2,085	42	11	...	53	54	72	4	130	183
Madras	Anantapur	3	3	...	...	...	17,831	488	...	...	488	386	68	62	516	1,004
	GRAND TOTAL (GOLD) FOR 1918.	4	3	1	...	...	19,916	530	11	...	541	440	140	66	646	1,187
	" " OF PRECEDING YEAR.	4	3	1	4	6	22,991	889	21	...	910	740	142	95	977	1,887
	DIFFERENCE . . .	...	...	...	—4	—6	—3,075	—359	—10	...	—369	—300	—2	—29	—331	—700
							I.—IRON ORE.									
							Tons.									
Bihar and Orissa . .	Singhbhum . . .	2	1	1	...	...	115,085	448	328	60	836	190	61	...	251	1,087
Central Provinces . .	Jabalpur	1	...	1	...	...	802	15	30	12	57	62	5	6	73	130
Rajputana . . .	Ajmer-Merwara . . .	2	..	2	...	...	3	19	...	...	19	1	1	1	3	22
	GRAND TOTAL (IRON) FOR 1918.		1	4	...	...	115,890	482	358	72	912	523	67	7	327	1,239
	" " OF PRECEDING YEAR.	3	1	2	...	...	178,303	556	432	104	1,092	350	159	5	514	1,606
	DIFFERENCE . .	+2	...	+2	...	...	—62,413	—74	—74	—32	—180	—97	—92	+2	—187	—367

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1918—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	
					J.—WOLFRAM.		Cwts.									
Bihar and Orissa	Singhbhum	1	1	...	...	...	51	40	...	...	40	32	24	...	56	96
Burma	Mergui	3	...	3	...	...	3,928	83	1	...	84	261	33	24	318	402
	Tavoy	99	4	95	33	81	66,380	4,845	25	...	4,870	3,766	192	56	4,014	8,884
	Thaton	11	...	11	...	...	1,830	408	107	50	565	220	158	53	431	996
	TOTAL	113	4	109	33	81	72,138	5,336	133	50	5,519	4,247	383	133	4,763	10,282
	GRAND TOTAL (WOLFRAM) FOR 1918.	114	5	109	33	81	72,189	5,376	133	50	5,559	4,279	407	133	4,819	10,378
	„ „ OF PRECEDING YEAR.	147	4	143	38	97	79,312	5,096	157	49	5,302	4,600	321	153	5,074	10,376
	DIFFERENCE	−33	+1	−34	−5	−16	−7,123	+280	−24	+1	+257	−321	+86	−20	−255	+2

K.—MAGNESITE.																
							Tons.									
Madras	Salem	1	...	1	1	1	5,773	105	85	131	321	26	...	6	32	353
	TOTAL OF PRECEDING YEAR	2	...	2	2	2	18,192	376	376	510	1,262	33	...	20	53	1,315
	DIFFERENCE	—1	...	—1	—1	—1	— 12,419	—271	—291	—389	—941	—7	...	—14	—21	—962
L.—CHROMITE.																
							Cwts.									
Baluchistan	Quetta-Pishin	2	...	2	...	...	1,040	2	...	...	2	...	...	...	...	2
	Zhob	21	...	21	...	...	457,840	104	...	...	104	60	...	...	60	164
	TOTAL	23	...	23	...	...	458,880	106	...	...	106	60	...	...	60	166
Bihar and Orissa	Singhbhum	4	...	4	...	...	21,710	97	102	10	209	33	4	1	38	247
	GRAND TOTAL (CHROMITE) FOR 1918	27	...	27	...	...	480,590	203	102	10	315	93	4	1	98	413
	„ „ OF PRECEDING YEAR.	30	...	30	4	4	345,329	300	23	40	613	75	12	3	90	703
	DIFFERENCE	—3	...	—3	—4	—4	+135,261	—97	—171	—30	—298	+18	—8	—2	+8	—290

STATISTICS OF MINES AND MINERALS—*contd.*

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1918—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								Grand total below and above ground.
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 13).	Total below ground.	Adult males.	Adult females.	Children (under 13).	Total above ground.	
							M.—COPPER ORE.									
							Tons.									
Bihar and Orissa	Singhbhum	1	1	—	1	2	3,619	191	...	...	191	768	312	43	1,123	1,314
Burma	Lower Chhindwin	1	...	1	...	...	...	4	...	...	4	26	...	...	26	30
Central Provinces	Balaghat	1	...	1	...	...	...	3	9	...	12	...	...	...	...	12
	GRAND TOTAL (COPPER) FOR 1918.	3	1	2	1	2	3,619	198	9	...	207	794	312	43	1,149	1,356
	" " OF PRECEDING YEAR.	2	1	1	1	5	20,108	472	...	...	472	810	335	55	1,200	1,672
	DIFFERENCE	+1	...	+1	...	−3	−16,489	−274	+9	...	−265	−16	−23	−12	−51	−316
							N.—BAUXITE.									
							Cwts.									
Central Provinces	Jabalpur	1	...	1	...	...	23,840	45	70	1	116	4	...	...	4	120
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	14,300	18	16	...	34	6	4	2	12	46
	DIFFERENCE	...	...	...	...	...	+9,540	+27	+54	+1	+82	−2	−4	−2	−8	+74

O.—CLAY.

							Tons.									
Bihar and Orissa	Manbhum	2	...	2	...	...	27,621	172	128	20	320	106	121	...	227	547
	Palamau	1	...	1	...	...	2,878	31	19	13	63	51	54	13	118	181
	TOTAL	3	...	3	...	...	30,499	203	147	33	383	157	175	13	345	728
Central Provinces	Jabalpur	5	2	3	...	...	58,357	103	141	20	267	54	6	1	61	328
Delhi	Delhi	1	...	1	...	...	2,536	12	...	...	12	11	...	...	11	23
	GRAND TOTAL (CLAY) FOR 1918.	9	2	7	...	...	91,392	318	291	53	662	222	181	14	417	1,079
	" " OF PRECEDING YEAR.	10	2	8	...	...	55,396	172	190	33	395	114	66	10	190	585
	DIFFERENCE	—1	...	—1	...	...	+35,996	+146	+101	+20	+267	+108	+115	+4	+227	+494

P.—GALENA.

							Cwts.									
Central Provinces	Drug	1	...	1	...	...	60	4	10	...	14	2	10	...	12	26
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	...	...	...	...	...	5	15	...	20	20
	DIFFERENCE	...	...	...	...	...	+60	+4	+10	...	+14	—3	—5	...	—8	+6

Q.—TIN.

							Cwts.									
Burma	Mergui	2	...	2	...	...	559	50	...	...	50	6	...	...	6	56
	Tavoy	1	...	1	3	6	10,307	8	...	...	8	44	10	5	59	67
	Thaton	1	1	...	...	...	1,157	130	10	...	140	146	14	...	160	300
	GRAND TOTAL (TIN) FOR 1918.	4	1	3	3	6	12,023	188	10	...	198	196	24	5	225	423
	" " OF PRECEDING YEAR.	9	1	8	...	...	3,640	77	8	2	87	233	8	3	244	331
	DIFFERENCE	—5	...	—5	+3	+6	+8,383	+111	+2	—2	+111	—37	+16	+2	—19	+92

Table No. 1—*contd.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1918—*contd.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines: Worked by mechanical power.	Number of mines: Not worked by mechanical power.	Number of mines inspected during the year: Number of mines inspected.	Number of mines inspected during the year: Number of inspections.	Total output.	Average number of persons employed daily in and about the mines: Below ground: Adult males.	Below ground: Adult females.	Below ground: Children (under 12).	Below ground: Total below ground.	Above ground: Adult males.	Above ground: Adult females.	Above ground: Children (under 12).	Above ground: Total above ground.	Grand total below and above ground.
							R.—STEATITE.									
							Cwts.									
Central Provinces	Jabalpur	3	...	3	...	...	60,917	61	43	2	106	21	44	7	72	178
Madras	Kurnool	1	...	1	...	...	202	2	3	...	5	3	1	...	4	9
	GRAND TOTAL (STEATITE) FOR 1918	4	...	4	...	...	61,119	63	46	2	111	24	45	7	76	187
	" " OF PRECEDING YEAR.	8	...	8	1	1	34,082	90	101	...	191	45	61	21	127	
	DIFFERENCE	—4	...	—4	—1	—1	+27,037	—27	—55	+2	—80	—21	—16	—14	—51	—131
							S.—FULLERS' EARTH.									
							Tons.									
Central Provinces	Jabalpur	*Mineral won from a limestone mine*					318	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	334	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	...	...	—116	...	...	...	...	...	...	...	...	...

					T.—SILVER.											
Madras	Anantapur		*Mineral won from a gold mine*				Ozs. 1,169	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	1,281	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	..	...	—112	...	...	...	...	...	...	...	...	...
					U.—SAMARSKITE.											
Madras	Nellore	...	*Mineral won from a mica mine*				Cwts. 1½	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	67	...	...	...	...	...	...	...	...	...
	DIFFERENCE	...	...	...	...	...	—65½	...	...	...	...	...	...	...	...	...
					V.—GRAPHITE.											
Rajputana	Ajmer-Merwara	2	...	2	...	...	Cwts. 20	8	...	...	8	2	5	3	10	18
	TOTAL OF PRECEDING YEAR	5	...	5	...	...	847	25	...	...	25	8	17	4	29	54
	DIFFERENCE	—3	...	—3	...	...	—827	—17	...	...	—17	—6	—12	—1	—19	—36
					W.—OCHRE.											
Bihar and Orissa	Puri	1	1	...	...	...	Tons. 93	10	...	...	10	12	...	7	19	29
	TOTAL OF PRECEDING YEAR	1	...	1	...	...	403	8	...	...	8	8	12	...	20	28
	DIFFERENCE	...	+1	—1	...	...	—310	+2	...	...	+2	+4	—12	+7	—1	+1
					X.—MOLYBDENITE.											
Burma	Tavoy	1	...	1	...	...	Cwts. 4	10	...	...	10	5	...	...	5	15
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	27	...	...	...	...	...	...	...	...	...
	DIFFERENCE	+1	...	+1	...	...	—23	+10	...	...	+10	+5	...	...	+5	+15

STATISTICS OF MINES AND MINERALS—*concld.*

Table No. 1—*concld.*

Number of mines regulated by the Indian Mines Act, 1901, number of workers and output of minerals, during the year 1918—*concld.*

Province.	District and mineral field.	Number of mines under the scope of the Act.	Number of mines		Number of mines inspected during the year.		Total output.	Average number of persons employed daily in and about the mines.								
								Below ground.				Above ground.				
			Worked by mechanical power.	Not worked by mechanical power.	Number of mines inspected.	Number of inspections.		Adult males.	Adult females.	Children (under 12).	Total below ground.	Adult males.	Adult females.	Children (under 12).	Total above ground.	Grand total below and above ground.
							Y.—BARYTES.									
							Cwts.									
Madras	Kurnool	1	...	1	...	...	24,000	12	7	...	19	6	16	...	22	41
	Total of preceding year	...	...	...	...	...	...	...	....	...	...	...	...	...	...	...
	Difference	+1	...	+1	...	...	+24,000	+12	+7	...	+19	+6	+16	...	+22	+41
							Z.—APATITE.									
							Tons.									
Bihar and Orissa	Singhbhum	1	...	1	...	...	5,100	45	30	4	79	41	25	5	71	150
	Total of preceding year	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Difference	+1	...	+1	...	...	+5,100	+45	+30	+4	+79	+41	+25	+5	+71	+150

AA.—POTASH.

Panjab	Jhelum	(*Mineral won from a Salt mine*)					Tons. 135	...	...	...	...	...	...	...	...	...
	TOTAL OF PRECEDING YEAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	DIFFERENCE . . .	...	...	...	...	...	+135	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (ALL MINERALS) 1918.	1,627	467	1,160	498	879	Tons. 20,784,515 Cwts. 725,418½ Carats. 164,115 Troy ounces. 21,085	91,516	55,442	3,106	150,084	55,703	27,050	4,921	87,674	237,738
	GRAND TOTAL OF PRECEDING YEAR.	1,663	442	1,221	655	1,086	Tons. 16,339,785 Cwts. 513,505 Carats. 198,200 Troy ounces. 24,272	80,295	49,773	2,974	133,042	51,377	22,997	4,465	78,839	211,881
	DIFFERENCE . . .	—36	+25	—61	—157	—207	Tons. +2,444,730 Cwts. +217,913½ Carats. —34,085 Troy ounces. —3,187	+11,221	+5,669	+132	+17,022	+4,326	+4,053	+456	+8,835	+25,857

APPENDIX I—*contd.*

Table No. 2.

Analyses of figures relating to output of coal.

Province.	District and mineral field.	Opening stocks.		Raisings.		Total.		Despatches.		Colliery Consumption.		Coal delivered to coking.		Closing stocks.		Coke made.	
		Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Steam.	Slack.	Hard coke.	Soft coke.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Assam	Lakhimpur	678	...	267,749	...	268,427	...	264,011	...	2,040	...	457	...	1,919	...	152	...
	Naga Hills	5,738	...	24,299	...	30,037	...	29,253	...	373	...	...	...	411	...	...	...
	Sibsagar	...	20	...	1,827	...	1,847	...	1,797	...	20	...	...	...	30	...	...
	Total	6,416	20	292,048	1,827	298,464	1,847	293,264	1,797	2,413	20	457	...	2,330	30	152	...
Baluchistan	Kalat	40	164	1,734	2,777	1,774	2,941	1,708	2,868	...	...	...	...	66	73	...	...
	Loralai	15	...	149	...	164	...	154	...	...	..	...	...	10	...	...	...
	Quetta-Pishin	291	871	1,785	7,080	2,076	7,951	1,334	6,197	...	...	...	...	742	1,754	...	...
	Sibi-Khost	195	766	8,743	20,857	8,938	21,623	8,698	16,540	35	4,654	...	...	205	429	...	...
	Total	541	1,801	12,411	30,714	12,952	32,515	11,894	25,605	35	4,654	...	...	1,023	2,256	...	...
Bengal	Bankura-Raniganj	2	1,087	5,696	566	5,698	1,653	4,925	483	773	249	...	...	...	921	...	...
	Birbhum "	...	..	2,281	669	2,281	669	2,062	91	...	566	...	...	219	12	...	...
	Burdwan "	51,768	19,722	4,411,259	881,824	4,463,027	901,546	4,029,421	333,251	127,834	510,417	35,050	13,853	270,722	44,025	4,549	23,197
	Total	51,770	20,809	4,419,236	883,059	4,471,003	902,868	4,036,408	333,825	128,607	511,232	35,050	13,853	270,941	44,958	4,549	23,197

Bihar and Orissa	Hazaribagh	Bokaro Ramgarh	4,182	5,633	420,472	120,950	424,654	126,583	399,693	101,514	1,275	6,089	...	7,610	23,686	11,370	5	5,064
		Giridih	4,296	5,110	635,039	211,553	639,335	216,663	624,598	99,553	1,215	54,946	...	58,626	13,522	3,538	45,173	...
		Jharia	8,819	1,372	160,981	28,231	169,800	29,603	124,830	15,938	9,420	9,767	...	350	35,550	3,548	106	...
	Manbhum	Jharia	231,805	104,485	9,128,639	1,633,209	9,360,444	1,737,694	7,859,774	660,216	304,024	700,333	218,679	201,670	977,967	155,475	131,885	104,684
		Raniganj	43,196	9,640	844,754	212,153	887,950	221,793	512,180	93,116	45,943	81,766	160,984	10,334	168,543	36,577	4,123	107,324
	Palamau-Daltonganj		1,237	518	62,568	19,248	63,805	19,766	63,021	12,477	...	6,333	...	...	784	956	...	...
	Sambalpur-Hingir Rampur		...	1	36,692	14,346	36,692	14,347	34,681	2,052	2,011	12,266	...	...	...	29	...	...
	Santal-Parganas.	Jainty	1,212	193	127,401	10,063	128,613	10,256	100,409	3,748	9,174	5,742	...	...	19,030	766	...	...
		Raniganj	294	234	8,026	1,291	8,320	1,525	6,241	550	534	495	...	...	1,545	480	...	...
		TOTAL	295,041	127,186	11,424,572	2,251,044	11,719,613	2,378,230	9,725,727	1,009,164	373,596	877,737	379,663	278,590	1,240,627	212,739	181,292	217,072
Central Provinces	Chanda		295	961	103,437	31,938	103,732	32,899	101,900	17,928	1,011	13,950	...	...	821	1,621	...	...
	Chhindwara		339	776	216,975	50,328	217,314	51,104	214,518	33,942	1,827	15,981	...	...	969	1,181	...	...
	Narsinghpur		2,714	2,172	53,960	24,832	56,674	27,004	47,798	17,235	8,565	8,211	...	...	311	1,558	...	...
	TOTAL		3,348	3,909	374,372	107,098	377,720	111,007	364,216	69,105	11,403	37,542	...	...	2,101	4,360	...	...
North-West Frontier Province.	Hazara		...	...	...	240	...	240	...	240	...	...	...	...	...	...	...	...
Panjab	Jhelum		...	4,304	3,738	35,913	3,738	40,217	3,488	36,157	300	1,051	...	...	...	3,009	...	...
	Mianwali		...	150	321	4,831	321	4,981	321	4,743	...	...	...	...	...	238	...	...
	Shahpur		...	579	404	5,211	404	5,790	404	4,496	...	174	...	...	...	1,120	...	...
	TOTAL		...	5,033	4,463	45,955	4,433	50,988	4,163	45,396	300	1,225	...	...	...	4,367	...	...
	GRAND TOTAL 1918		357,116	158,758	16,527,102	3,319,937	16,884,218	3,478,695	14,435,672	1,485,132	516,354	1,432,410	415,170	292,443	1,517,022	268,710	185,993	240,239

APPENDIX I—*contd.*

Table No. 3.

Number of mines opened and closed during the year ending 31st December 1918.

Province.	District.		Number of mines opened.	Number of mines closed.
	A.—COAL.			
Assam	Lakhimpur		1	...
Baluchistan	Sibi-Khost		3	...
Bengal	Birbhum		3	2
	Burdwan-Raniganj		9	...
	Total		12	2
Bihar and Orissa	Hazaribagh	Bokaro-Ramgarh	1	5
		Giridih	...	2
	Manbhum	Jharia	11	7
		Raniganj	...	1
	Sambalpur, Hingir Rampur		2	...
	Sonthal Parganas, Raniganj		1	1
	Total		15	16
Central Provinces	Chanda		2	...
	Chhindwara		3	...
	Total		5	...
Panjab	Shahpur		1	...
	Total (Coal)		37	18
	B.—MICA.			
Bihar and Orissa	Bhaghalpur		...	2
	Gaya		15	5
	Hazaribagh		129	56
	Manbhum		1	...
	Monghyr		8	4
	Sambalpur		1	...
	Total		154	67

APPENDIX I—*contd.*

Table No. 3—*contd.*

Number of mines opened and closed during the year ending 31st December 1918—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
	B—MICA—*concld.*		
Madras	Nellore	23	15
Rajputana	Ajmer-Merwara	5	14
	Total (Mica)	182	96
	C.—MANGANESE.		
Central Provinces	Balaghat	...	1
	Nagpur	2	3
	Total	2	4
Madras	Vizagapatam	1	...
	Total (Manganese)	3	4
	D.—LIMESTONE.		
Central Provinces	Bilaspur	1	...
	Jabalpur	6	5
	Total (Limestone)	7	5
	E.—IRON ORE.		
Central Provinces	Jabalpur	1	...
Rajputana	Ajmer-Merwara	1	1
	Total (Iron)	2	1
	F.—WOLFRAM.		
Bihar and Orissa	Singhbhum	1	...
Burma	Tavoy	17	6
	Thaton	2	1
	Total	19	7
	Total (Wolfram)	20	7

APPENDIX I—*contd.*

Table No. 3—*contd.*

Number of mines opened and closed during the year ending 31st December 1918—*contd.*

Province.	District.	Number of mines opened.	Number of mines closed.
	G.—BAUXITE.		
Central Provinces	Jabalpur	1	1
	H.—COPPER.		
Burma	Lower Chhindwin	...	1
Central Provinces	Balaghat	1	1
	Total (Copper)	1	2
	I.—CLAY.		
Bihar and Orissa	Manbhum	...	1
Central Provinces	Jabulpur	...	1
Delhi	Delhi	1	1
	Total (Clay)	1	3
	J.—GALENA.		
Central Provinces	Drug	1	1
	K.—TIN.		
Burma	Tavoy	1	...
	L.—GOLD.		
Madras	Anantapur	...	1
	M.—SLATE.		
Bihar and Orissa	Monghyr	1	...
Panjab	Surgaon	1	...
	Total (Slate)	2	...

APPENDIX I—*contd.*

Table No. 3—*concld.*

Number of mines opened and closed during the year ending 31st December 1918—*concld.*

Province.	District.	Number of mines opened.	Number of mines closed.
	N.—GRAPHITE.		
Rajputana	Ajmer-Merwara	...	2
	O.—APATITE.		
Bihar and Orissa . . .	Singhbhum	1	...
	P.—BARYTES.		
Madras	Kurnool	1	...
	GRAND TOTAL (all mines) .	260	141

Table No. 4.

The following table shows the fluctuations in the output of the principal minerals raised from mines classed under the Indian Mines Act, 1901. The other minerals raised are gems, slate, iron ore, magnesite, chromite, tin, steatite, clay, galena, bauxite, fuller's earth, silver, graphite, molybdenite, ochre, potash, samarskite, apatite and barytes.

Year.	Coal.	Manganese.	Mica.	Limestone.	Salt.	Wolfram.	Gold.	Copper ore.
	Tons.	Tons.	Cwts.	Tons.	Tons.	Cwts.	Troy ozs.	Tons.
1909 . .	11,294,227	357,205	32,011	56,502	126,987	144	5,615	7
1910 . .	11,387,716	468,669	21,375	81,258	119,867	18	3,269	864
1911 . .	12,048,726	441,426	31,686	92,692	124,603	8,394	8,277	2,079
1912 . .	14,044,368	423,464	41,660	91,784	131,233	25,401	7,269	8,984
1913 . .	15,486,318	637,391	43,650	71,259	138,540	27,520	11,019	3,639
1914 . .	15,727,631	555,672	38,189	146,505	135,518	31,526	19,873	4,400
1915 . .	16,352,480	373,172	24,063	64,179	144,770	39,432	24,320	8,010
1916 . .	16,419,082	568,032	35,978	45,290	160,357	59,094	23,235	2,671
1917 . .	17,326,384	497,052	35,896	82,340	152,542	79,312	22,991	20,108
1918 . .	19,847,039	415,357	51,572	131,451	158,513	72,189	19,916	3,619

APPENDIX I—*concld.*

Table No. 5.

The following table shows the amount of coal raised, the average number of persons working daily and the death-rate during the years 1909 to 1918 in respect of coal mines under the Indian Mines Act, 1901 :—

Year.	Amount of coal raised.	Average number of persons working daily below and above ground.	Number of deaths below and above ground.	Death-rates.	
				Per 1,000,000 tons raised.	Per 1,000 persons working daily below and above ground.
1909 . . .	11,294,227	109,291	119	10·53	1·08
1910 . . .	11,387,716	105,285	160	14·05	1·52
1911 . . .	12,048,726	106,598	148	12·28	1·38
1912 . . .	14,044,368	121,392	157	11·17	1·29
1913 . . .	15,486,318	133,042	185	11·95	1·39
1914 . . .	15,727,631	137,851	145	9·22	1·05
1915 . . .	16,352,480	145,537	166	10·15	1·14
1916 . . .	16,419,082	143,459	169	10·29	1·18
1917 . . .	17,326,384	153,683	163	9·41	1·06
1918 . . .	19,847,039	176,269	197	9·93	1·12

APPENDIX II.

ACCIDENTS IN MINES.

Table No. I.

List of Fatal Accidents in mines regulated by the Indian Mines Act, 1901, during the year 1918.

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			EXPLOSIONS OF FIRE DAMP—(*12 deaths*).			
1	2nd January, 8 A.M.	Kuardi Mine, Charanpur P. O., Bengal.	Kuardi Coal Co.	Moti Meah, (*m.*), 30, *Miner*.	Coal	Deceased, whilst working at the face of a narrow gallery with a naked light, ignited an accumulation of gas. He received burns about the face, shoulders and lower arms, and died 11 days later. Inspection and inquiry made.
2	6th September, 3-30 P.M.	Bejdih Mine, Sitarampur P. O., Bengal.	Equitable Coal Co., Ld.	Murathia Barhi, (*m.*), 25, *Main gallery driver*.	Coal	Some miners, carrying open lights, were sent to work in a district where safety lamps were in use. A small accumulation of fire damp, in the gallery in which deceased was at work, became ignited by one of the open lamps. Deceased was badly burnt about the upper part of the body and died five days later. Inspection and inquiry made.
3	18th November, about 9 A.M.	Dishergarh Mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Ram Charan Lobar, (*m.*), 32, *Timber Mistry*; Karim Meah, (*m.*), 42, *Rail Mistry*; Ramjash Jeswar, (*m.*), 48, *Fencing coolie*; Broja Roy, (*m.*), 21, *Timber coolie*; Gosta Bauri, (*m.*), 24, *Rail coolie*. Khedoo Teli, (*m.*), 26, *Timber Mistry*; Fakir Bauri, (*m.*), 40, *Brattice Sirdar*; Abdul Khalil, (*m.*), 21, *Rail coolie*; Abdul Mistry, (*m.*), 32, *Rail Mistry*; Uzir Meah, (*m.*), 48, *Timber coolie*.	Coal	Fourteen persons were engaged in building two stoppings in a disused gallery lying to the rise of an old goaf. Some of them climbed into the goaf to get stones for the building of the stoppings and fire damp in the goaf was ignited at the naked light of one of them. An explosion occurred by which all the persons were burnt, and 10 succumbed to their injuries. Inspection and inquiry made. (*See Report, page 7.*)

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—(*126 deaths*).			
			(*a*) **Falls of roof**—(*70 deaths*).			
4	25th January, 5-30 A.M.	Kendwadih mine, Jamadoba P. O., Bihar and Orissa.	Hariladih Coal Co., Ld.	Ram Bhaju Barhi, (*m.*), 18, *Timberman.*	Coal	Deceased was an experienced timberman. He stopped the coal-cutters from working at a pillar in a pillar extraction district, and began to set props on the edge of the goaf. He kept one coal-cutter to assist him. Whilst they were measuring the length of props required, a fall of roof occurred in the goaf. They were both struck by the edge of the falling stone. Deceased was killed and the coal-cutter sustained a serious spinal injury. Inspection and inquiry made.
5	30th January, 1-30 P.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Raghu Chamar, (*m.*), 25, *Coal-cutter.*	Coal	Whilst deceased was cutting roof coal in a gallery, 10 feet wide by 7 to 10 feet high, a nodule of stone, weighing about 80 lbs., fell upon him from a height of 6 feet. He was struck over the heart, and died shortly after. The stone fell from an irregular band in the coal seam. Inspection and inquiry made.
6	3rd February, 1 A.M.	Benabir mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Jamni Kohlin, (*f.*), 10, *Coal-carrier.*	Coal	Whilst deceased was sitting down in a gallery, roof stone, 6′×3′×0″—12″, fell from a 'slip.' She sustained injuries to which she succumbed within a few hours. Inspection and inquiry made.
7	1st February, 6-30 P.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Nowagarh Coal Co., Ld.	Bhikari Dosadh, (*m.*), 50, *Propping coolie.*	Coal	Stone cogs were being built in a pillaring area. Deceased and two other coolies were engaged in carrying stones for the building from the edge of the goaf. A heavy fall took place in the goaf, and some of the falling stones struck deceased, causing injuries which terminated fatally within a few hours. Inspection and inquiry made. (*See Report page 8.*)
8	6th February, 2 A.M.	Hatgarooie mine, Sitarampur P. O., Bengal.	Lutchipur Coal Co., Ld.	Nowaj Gope, (*m.*), 32, *Coal-cutter.*	Coal	Deceased, accompanied by his coal-carrier, left his working place, broke down a fence, and was robbing coal from the corner of a pillar, when a mass of overhanging roof stone, measuring 6′ 0″×5′ 0″×1′ 0″, fell upon him and his companion from a height of 4′ 8″. He sustained a fractured spine and died one and-a-half hours later. His coal-carrier sustained a simple fracture of the right thigh. Inspection and inquiry made.
9	20th February, 3 P.M.	Joktiabad mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Bhim Gope, (*m.*), 40, *Stone-cutter.*	Coal	Deceased, with several other men, was working at a 'fall' of 'dropped' coal when the main roof in the inside goaf fell without any warning. A piece of stone, measuring 3′ 0″×3′ 0″×0′ 9″, fell within the 'opening' from a height of 18′ 0′ and struck deceased, killing him instantly. Inspection and inquiry made.
10	13th February, 10 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Tek Bahadur Rana (Nepali), (*m.*), 38, *Coal-shoveller.*	Coal	Whilst deceased was at work in an 'opening,' 36′×30′×12′ high, about a ton of coal fell from the roof without warning. He was killed on the spot. Inspection and inquiry made.

11	28th February, 11-30 A.M.	Alkusa mine, Kusunda P. O., Bihar and Orissa.	Kanga & Co.	Chaman Rai Rajwar, (*m.*), 30, *Coal-cutter.*	Coal	Deceased, with three other coal-cutters, was employed in cutting roof coal, 3′ thick, in a gallery adjoining an open quarry. He under-cut the side and caused a block of coal, 3′ 0″×3′ 0″×2′ 6″, which came away from a 'slip,' to fall upon him from a height of 10 feet. He sustained injuries which terminated fatally an hour later. Inspection and inquiry made.
12	20th February, 10 P.M.	Jainty Central mine, Karmatar P. O., Bihar and Orissa.	Jainty Central Colliery, Ld.	Ugan Chamar, (*m.*), 35; Bana Meah, (*m.*), 34, *Coal-cutters.*	Coal	The deceased, and two other persons who were injured, broke down a fence and entered a gallery in which the roof was unsafe and were cutting loose side coal, when a mass of shaly roof, measuring 10′ 0″×7′ 0″×1′ 6″, fell suddenly upon them, from a height of 6′ 0″. The deceased sustained serious internal injuries. One died four hours and the other four days later. The injured persons sustained serious abrasions on the head and body. Inspection and inquiry made.
13	28th February, 1-30 P.M.	Radhaballabbpur mine, Samdi P. O., Bengal.	J. Boisogomoff & Co.	Sam Manjhi, (*m.*), 25, *Coal-cutter.*	Coal	Deceased, a coal-cutter, went with a miner through a fence into some disused workings, to rob coal from the corner of a pillar. A mass of roof coal, measuring 6′ 0″ × 3′ 0″ × 1′ 0″, fell from a height of 8′ 0″ and struck deceased. He sustained serious injuries and died in his village several days later. Inspection and inquiry made.
14	2nd March, 4-30 P.M.	Babisol mine, Raniganj P. O., Bengal.	Bilbera Coal Co., Ld.	Sham Manjhi, (*m.*), 35, *Coal-cutter.*	Coal	Deceased, hearing the roof "weighting" near his working place, lost his head and ran into danger. A mass of roof coal, measuring 10′ 0″×5′ 0″×3′ 0″, fell suddenly from a height of 7′ 6″. He was buried under the fall and killed instantly. Inspection and inquiry made.
15	16th March, 9-30 A.M.	Craddock mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ld.	Kulu Gond, (*m.*), 18, *Timbering coolie.*	Coal	Timber was being extracted in a goaf, and, as the last prop was withdrawn, deceased bent down to pick up a wedge. While doing so a mass of stone, measuring 4′ 0″× 3′ 0″×1′ 0″, fell from a height of 4 feet upon him. He received injuries which resulted in his death an hour later. Inspection and inquiry made.
16	21st March, noon.	Central Dharmaband mine, Katrasgarh P. O., Bihar and Orissa.	Central Dharmaband Coal Co., Ld.	Bhika Manjhi, (*m.*), 40, *Miners' Sirdar.*	Coal	Deceased broke down a fence and entered old workings, where he began to rob coal from the side of a pillar. Whilst so engaged, a mass of roof stone, measuring 9′ 0″×9′ 0″×0′ 5″ thick, fell upon him. He was killed on the spot. Inspection and inquiry made.
17	4th April, 12-45 P.M.	Tikak (Lower) mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Lalbir Kama (Nepali), (*m.*), 28, *Tub-filler.*	Coal	Whilst deceased was loading coal in an "opening," 40′×16′×5′ to 16′ high, he was killed by a mass of 30 cwts. of coal, which fell from the roof 12 feet above, without warning. Inspection and inquiry made.
18	13th April, 4 P.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Panchkouri Ruhidas, (*m.*), 20, *Miner.*	Coal	Deceased, against orders, entered a gallery to load some coal which had been blasted down. Whilst so employed, a piece of roof coal, measuring 1′ 9″ ×0′ 10″×0′ 4″, fell upon him from a height of 12 feet. He sustained a compound fracture of the leg and died on the following day. Inspection and inquiry made.
19	15th April, 2 A.M.	Banksimula mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ld.	Bhatu Bhooia, (*m.*), 35, *Propping coolie.*	Coal	Deceased, whilst assisting the sirdar and propping carpenter to withdraw props in a goaf, was in the act of loosening the ground at the foot of a prop, when a piece of coal, measuring 2′ 6″×1′ 6″×1′ 6″, fell from the roof at a height of 12 feet, struck another prop and rebounded on to deceased, causing serious injuries from which he died 25 minutes later. Inspection and inquiry made.
20	19th April, 9 A.M.	North Mudidih mine. Sijua P.O., Bihar and Orissa.	Reliance Coal Co., Ld.	Dinu Kole, (*m.*), 40, *Miner.*	Coal	Deceased went behind a fence into a goafed area to rob coal, and was killed by a large fall of roof, which took place suddenly in the goaf. Inspection and inquiry made.

Fatal accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) **Falls of roof—*contd.***			
21	25th April, 4-30 P.M.	Ekra mine, Bansjora P. O., Bihar and Orissa.	Maharaja M. C. Nandi .	Somi Baurin, (*f.*), 25; Jugal Bauri, (*m*), 18, *Coal-carriers.*	Coal . .	The deceased were walking along a travelling road, when a mass of coal measuring 14′ 0″×14′ 0″×1′ 6″, fell from a height of 5′ 6″ upon them. The woman was killed outright and the man succumbed to his injuries two days later. Inspection and inquiry made.
22	10th April, 10-30 A.M.	Dobalia mine, Kalipahari P. O., Bengal.	Dobalia Coal Co. .	Boku Kora, (*m.*), 45, *Miner.*	Coal . .	Deceased crossed a fence to rob coal in a goafed area. Whilst so doing, a mass of roof stone fell through a distance of 6 feet upon his leg and fractured it. He died 13 hours later. Inspection and inquiry made.
23	18th April, 10 A.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Golla Passi, (*m.*), 24, *Contractor's Sirdar.* Sankar Kairi, (*m.*), 35, *Tub-pusher.*	Coal . .	The two deceased were standing near a tub, which was being loaded on a road, 6′ 0″ wide and 5′ 0″ high, when a slab of coal 1′ 0″ thick and weighing about half a ton, fell from the roof. Golla Passi sustained an injury to the head and died in hospital two days later. Sankar Kairi was seriously injured and died in hospital three days later. Inspection and inquiry made.
24	6th May, 1 P.M.	Hatuol mine, Barakar P. O., Bengal.	M. L. Laik & Bros. .	Bipin Mahato, (*m.*), 38, *Coal-cutter*; Ghanashem Chamar, (*m.*), 35, *Carpenter's coolie.*	Coal . .	Timbers were being set under the roof coal in a goafing district, prior to extracting two small pillars of coal. The deceased coal-cutter, in spite of being warned not to do so, commenced to cut coal before all the necessary props had been set. One of the 'stooks' collapsed and a mass of roof coal, measuring 16′ 0″×18′ 0″×2′ 6″, fell from a height of 8′ 0″ on to him and on to the other deceased, killing them instantly. Inspection and inquiry made.
25	27th April, 9-30 A.M.	Chasnalla mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld. .	Goman Meah, (*m.*), 35, *Miner.*	Coal . .	Deceased and a companion were dressing the sides and roof of a gallery, in which there was a pronounced "slip" in the roof. Deceased had sat down to smoke under the place where his companion had been working in the roof, when a mass of roof coal, weighing about 6 cwts., fell from a height of 6 feet upon him. He sustained a fracture of the spine, and died 10 days later. Inspection and inquiry made.
26	15th May, 5 P.M.	Sudrendih mine, Nowagarh P. O., Bihar and Orissa.	Jainarayan Ramjash Agarwalla.	Nema Roy, (*m.*), 30, *Miner.*	Coal . .	Deceased and another man, who was injured, were working in a gallery, when a mass of stone suddenly fell from between two converging 'slips' in the roof. The mass weighed about a ton and fell from a height of 7 feet. Inspection and inquiry made.
27	23rd May, 6 A.M.	Alkusa South mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Jhaksi, (*f.*), 17, *Coal-carrier.*	Coal . .	Whilst deceased was walking through a gallery, a mass of coal, measuring 5′ 0″×2′ 0″ and tapering to a point, fell upon her from a height of 14 feet. She was killed instantly. Inspection and inquiry made.

28	20th May, 5 A.M.	Jamuria mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Churu Manjhi, (*m.*), 40, *Coal-cutter.*	Coal	Deceased went inside a fence, on the edge of a goaf, to cut coal from the corner of a pillar. A mass of overhanging roof coal fell upon him from a height of 8 feet, killing him instantly. Inspection and inquiry made.
29	6th June, 3-30 P.M.	Bhuggutdih mine, Jharia P. O., Bihar and Orissa.	Bengal-Nagpur Coal Co., Ld.	Khudi Mallik, (*f.*), 25, *Coal-carrier.*	Coal	Deceased was seriously injured by a fall of roof coal, measuring 20′ 0″ ×12′ 0″ to 6′ 0″×3′ 0″ thick, which occurred near a pillar which was being extracted. She died from shock the same day. Inspection and inquiry made.
30	21st June, 8-30 A.M.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakur Coal Co., Ld.	Ramabatar Mudi, (*m.*), 30, *Hookman.*	Coal	Whilst deceased and two companions were at work at the junction of four roads in a haulage incline, a mass of roof stone, measuring 15′ 0″× 14′ 0″ ×1′ 9″ to 0′ 3″, fell upon them from a height of 7′ 6″. Deceased was killed instantly, whilst his two companions were injured. Inspection and inquiry made.
31	28th June, 11 A.M.	Rampur mine, Asansol P. O., Bengal.	A. N. Sircar & Co.	Prasanna Bauri, (*m.*), 30, *Miner.*	Coal	Deceased passed over a fence to rob some fallen coal lying in a goaf. Whilst so engaged, a mass of roof coal, weighing about 6 tons, fell from a height of 18 feet upon him. He was killed instantly. Inspection and inquiry made.
32	26th June, 3 A.M.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Gorey Mager, (*m.*), 36, *Tub-filler.*	Coal	Deceased was filling baskets at the entrance of an opening, which was 20 feet high. About 3 cwts. of coal dirt fell on to him without warning, causing injuries from which he died while being taken to hospital.
33	9th July, 6-30 A.M.	Chanch mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Kedar Bauri, (*m*), 28, *Coal-cutter.*	Coal	Deceased was in the act of robbing the corner of a pillar on the side of a tram line, when a mass of stone, measuring 4′ 0″×2′ 6″×0′ 7″, fell from a height of 8 feet on to him, fracturing his spine and killing him instantly. Inspection and inquiry made.
34	10th July, 9 P.M.	Craddock mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ld.	Dulli Ahir, (*m.*), 25, *Coal-cutter.*	Coal	Deceased crossed a fence to collect loose coal in goaf. He had been warned not to do so. He was caught by a slab of stone, which fell from the roof, and died two days afterwards from the injuries he received. Inspection and inquiry made.
35	15th July, 5-30 A.M.	Huntodi mine, Mohuda P. O., Bihar and Orissa.	Huntodih Coal Co., Ld.	Muktear Meah, (*m.*), 24, *Fitter's labourer.*	Coal	Whilst deceased, with a pump-attendant, was on duty at an underground pump, a mass of roof coal, 29′ 0″ × 10′ 0″ × 0′ 7″ thick, fell from a height of 10 feet. Deceased was killed on the spot. The other man was only slightly injured. Inspection and inquiry made.
36	21st July, 5-30 A.M.	Nursumuda mine, Asansol P. O., Bengal.	Sitarampur Coal Co., Ld.	Matak Manjhi, (*m.*), 25, *Coal-cutter.*	Coal	Deceased was robbing a pillar in a fenced area when a large mass of stone, measuring 14′ 0″ × 2′ 0″ × 1′ 0″, fell on to him from a hidden 'slip' in the roof through a distance of 3′ 9″. He was killed instantly. Inspection and inquiry made.
37	19th July, 1 P.M.	Asansol mine, Asansol P. O., Bengal.	Ghusick Muslia Collieries, Ld.	Chunka Manjhi, (*m.*), 21, *Coal-cutter.*	Coal	Deceased was robbing the corner of pillar in a main road when a large piece of stone, measusing 7′ 6″×2′ 0″×1′ 6″, fell from a height of 3′ 9″ on to him. He was killed instantly. Inspection and inquiry made.
38	26th July, 0-30 A.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Nowagarh Coal Co., Ld.	Doyal Jeswari, (*m.*), 26, *Coal-cutter.*	Coal	Whilst deceased was engaged in robbing coal from the side of a tramming level, a slab of roof stone, 14′ 0″×0′ 6″ to 0′ 30″ wide ×0′ 2″ thick, fell on to him. He sustained injuries to which he succumbed four days later. Inspection and inquiry made.
39	31st July, 2 P.M.	Jainty Central mine, Karmatar P. O., Bihar and Orissa.	Jainty Central Coal Co., Ld.	Mahabir Kole, (*m.*), 28, *Miner.*	Coal	Deceased was dressing the side of a gallery. While so doing a mass of stone, measuring 5′ 0″×5′ 0″×0′ 6″, fell from a hidden 'slip' through a height of 6′ 6″ on to him. He was killed instantly. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*a*) Falls of roof—*contd.*			
40	27th August, 9-30 A.M.	Churulia mine, Panuria P. O., Bengal.	Churulia Coal Co., Ld.	Ajudhya Sutradhar, (*m.*), 30, *Carpenter*; Mahesh Bauri, (*m.*), 36, *Main heading driver.*	Coal	The deceased, although they had been previously warned, passed under some roof which was being dressed. Whilst so doing a mass of stone, measuring 4′ 0″×2′ 6″×0′ 5″, fell on to them from a height of 7′ 6″. They died 10 and 15 days later, respectively. Inspection and inquiry made.
41	1st September, 7 A.M.	Ramnagar mine, Kulti P. O., Bengal.	Bengal Iron and Steel Co., Ld.	Dhena Manjhi, (*m.*), 24, *Miner.*	Coal	Whilst deceased and 5 companions were extracting a pillar, a ' weight ' came on. In attempting to get to the surface through an old subsidence, a piece of stone, measuring 6′ 0″×4′ 0″×3′ 0″, fell on to him from the roof through a distance of about 10 feet. He was killed instantly. Inspection and inquiry made.
42	11th September, 2-30 P.M.	Benali mine, Raneeganj P. O., Bengal.	Phularitand Coal Co., Ld.	Ishor Hari, (*m.*), 30, *Coolie.*	Coal	Whilst deceased was clearing a fall of roof, another fall occurred. He was struck by a piece of stone, weighing about 480 lbs. which fell from a height of 12 feet. He was killed instantly. Inspection and inquiry made.
43	29th August, 7-15 A.M.	Kalimati mine, Kalimati P. O., Bihar and Orissa.	Indian Mineral Syndicate	Batcha, (*m.*), 29, *Timber-coolie.*	Wolfram	Deceased and three other coolies, while changing timbers in an inclined shaft, were caught by a sudden fall of clay from the hanging wall. Deceased succumbed to a fractured skull, the three other coolies being injured.
44	9th September, 12-30 P.M.	Kalithan Suratand mine, Jharia P. O., Bihar and Orissa.	K. B. Seal	Chandmoni Majhian, (*f.*), 30, *Coal-carrier.*	Coal	While coal-cutters were engaged in extracting a pillar of coal, a slab of shale, 28′ 0″×8′ 0″×0′ 9″ thick, fell from the roof, 10 feet above, dislodging five props. Deceased was buried under the slab and was killed on the spot. Inspection and inquiry made.
45	12th September, 7 A.M.	Babisole mine, Ondal P. O., Bengal.	Bilbera Coal Co., Ld.	Bondhu Muchi, (*m.*), 18, *Coal-carrier.*	Coal	Deceased, in spite of being warned not to do so, walked under some shaly roof stone which was being dressed down. A piece, measuring about 1′ 8″×1′ 8″ ×0′ 6″, fell on to him from a height of 9 feet. He sustained a fracture of the right thigh and left collar bone and died three days later. Inspection and inquiry made.
46	17th September, 10-45 A.M.	New Kessurgarah mine, Katrasgarh P. O., Bihar and Orissa.	New Kessurgarah Coal Co., Ld.	Mukti Kumharin, (*f.*), 18; Chotua Musalmani, (*f.*), 14, *Coal-carriers.*	Coal	The deceased were employed in carrying coal in a pillar extraction district. Whilst they were resting, a mass of roof coal, 20′ 0″×20′ 0″×3′ 0″ thick, fell on to them from a height of 10 feet. They were killed instantly. Inspection and inquiry made.
47	19th September, 9 P.M.	Damudarpur mine, Nandi P. O., Bengal.	Bengal Coal Co., Ld.	Ram Prosad Singh, (*m.*), 36, *Sirdar.*	Coal	Whilst deceased was sounding some weak roof, a piece of shale, measuring 3′ 0″×2′ 0″×0′ 2½″, fell through a distance of 3 feet on to him. He sustained injuries to the spinal cord and died shortly afterwards. Inspection and inquiry made.

48	20th September, 1-30 P.M.	Mudidih (North) mine, Sijua P. O., Bihar and Orissa.	Reliance Coal Co., Ld.	Nobin Teli, (*m.*), 22, *Coal-cutter.*	Coal	Whilst deceased was engaged in cutting side coal on a haulage road 6 feet in height, a mass of stone, 21′ 0″×1′ 6″ to 7′ 6″×2′ 0″ thick, fell from between "slips" in the roof. He sustained injuries to which he succumbed five days later. Inspection and inquiry made.
49	27th September, 3-30 P.M.	Sripore mine, Kalipahari P. O., Bengal.	Lodna Colliery Co., Ld.	Atu Kuri, (*m.*), 45, *Shotfirer.*	Coal	Deceased was a shotfirer. He had fired 3 shots in the base of a "stook" of coal, and had returned to prepare five others. Whilst so doing, the roof came on "weight" and fell on to him. He was killed instantly. Inspection and inquiry made.
50	1st October, 6 P.M.	Nandi mine, Nandi P. O., Bengal.	Adjai Coal Co., Ld.	Saheb Mahato, (*m.*), 30, *Propping carpenter.*	Coal	Deceased with others was engaged in drawing the timbers surrounding a "stook" of coal about 6 feet square. Eighteen props had been withdrawn, when the sound of the roof "weighting" was heard in the goaf. All made a dash for safety, but deceased was completely buried under a mass of roof which fell. Another man sustained a few minor injuries. Inspection and inquiry made.
51	11th October, 3 P.M.	Lutchipur mine, Sitarampur P. O., Bengal.	Lutchipur Coal Co., Ld.	Lakhi Bhumij, (*f.*), 32, *Coal-carrier.*	Coal	Deceased was filling a basket of coal, when a mass of roof coal, weighing about a ton, fell from a height of 14 feet. A piece of the coal rolled over and struck her in the back, causing severe internal injuries from which she died four hours later. Inspection and inquiry made.
52	7th October, 11-30 A.M.	Hpaungdaw mine, Tavoy P. O., Burma.	London and Burmese Wolfram Co., Ld.	Jit Singh, (*m.*), 25, *Timberman.*	Wolfram	Deceased was setting timber in a drive and was killed by a fall of soft earth from the roof.
53	25th October, 11 A.M.	Kustore (North) mine, Kustore P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Charan Mahato, (*m.*), 18, *Coal-carrier.*	Coal	Deceased was loading some roof coal, which had been got down, when a piece of coal, measuring 5′ 0″×4′ 0″×0′ 10″, fell from a height of 10 feet, without any warning. A piece of the coal struck deceased on the back and fractured his spine. He died one hour later. Inspection and inquiry made.
54	28th October, 2-30 P.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Luki Roy, (*m.*), 16, *Coal-carrier.*	Coal	Deceased was loading coal under, or close to, where roof coal was being cut. A piece of coal, measuring 3′ 0″ × 2′ 9″ × 1′ 0″, fell from concealed "slips," through a height of 8 feet and struck him on the head, killing him instantly. Inspection and inquiry made.
55	28th October, 6 P.M.	Begunia Khas mine, Barakar P. O., Bengal.	Maharajah M. C. Nandi	Josoda Baurin, (*f.*), 42, *Coal-carrier.*	Coal	Deceased was loading a tub of coal on an underground siding, when a mass of roof coal, measuring 45′ 0″ × 10′ 0″ × 1′ 2″, liberated from a concealed "slip", fell from a height of 6 feet, killing her instantly. Inspection and inquiry made.
56	24th October, 4-30 P.M.	Kalabagh mine, Khewra P. O., Punjab.	Government of India	Rah Nawaz Mohomed, (*m.*), 38, *Miner.*	Salt	Deceased was killed by a fall of rock salt, weighing about two tons, from the roof, from a height of 10 feet. Inspection and inquiry made.
57	12th November, 4-10 P.M.	Ramnagar mine, Kulti P. O., Bengal.	Bengal Iron and Steel Co., Ld.	Mohi Tuni, (*f.*), 23, *Coal-carrier.*	Coal	Deceased went behind a fence into a goaf. Whilst there, a mass of stone, measuring about 15′ 0″ × 3′ 0″ × 2′ 0″, fell from the roof. She was caught by the edge of the fall and killed instantly. Inspection and inquiry made.
58	16th November, 7-30 A.M.	Bhatdih mine, Mohuda P. O., Bihar and Orissa.	Bengal Bhatdih Coal Co., Ld.	Suklal Bauri, (*m.*), 38, *Coal-cutter.*	Coal	Deceased went through a fence and commenced to cut coal from a partially extracted pillar, measuring 15′ 0″ × 6′ 0″ at the top and 8′ 0″ ×4′ 0″ at the base. The "stook" collapsed of its own weight and fell on to him. He was killed instantly. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			Falls of roof—*concld.*			
59	16th November, 3 P.M.	Bhaga mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Dukhan Bhuia, (*m.*), 55, *Coal-cutter.*	Coal	Deceased was dressing side coal near the face of a main gallery, when a piece of roof stone, measuring 4′ 0″×2′ 0″×0′ 8″, fell from a concealed "slip" at a height of 6 feet and struck him on the head, fracturing his skull. He died 2½ hours later. Inspection and inquiry made.
60	10th November, 5 A.M.	Ledo Valley mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Lulbir Kumal, (*m.*), 35, *Basket-filler.*	Coal	While deceased was filling a basket in an 'opening,' 16 feet high, he was killed by a fall of 5 tons of roof coal.
61	18th November, 11-30 P.M.	Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Messrs. Tata Iron and Steel Co., Ld.	Latu Chamar, (*m.*), 38, *Coal-cutter.*	Coal	Deceased went inside a fence and was cutting overhanging side coal in a disused gallery, when a piece of coal, measuring 4′ 0″×2′ 0″×1′ 6″, broke away and fell on to him. He sustained a compound fracture of the right arm and severe injuries to the head and died in hospital five days later. Inspection and inquiry made.
62	4th December, 1-30 P.M.	Jamuria mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Mohan Kole, (*m.*), 35, *Miner.* Marti Mejhian, (*f.*), 20; Kirodee Mejhian, (*f.*), 18, *Coal-carriers.*	Coal	The three deceased were loading fallen roof coal in a fenced-off goaf. A mass of roof coal fell on to them from a height of 10′ 6″. They were killed instantly. Inspection and inquiry made.
63	13th December, 2-30 P.M.	Tikak Lower mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Mangal Darjee, Nepali, (*m.*), 24, *Basket-filler.*	Coal	While deceased was filling coal in an 'opening,' 20 tons of coal fell from the roof of the 'opening' and killed him instantly.
64	24th December, 4-15 P.M.	Nundi mine, Jamuria P. O., Bengal.	Adjai Coal Co., Ld.	Betul Chamar, (*m.*), 38, *Underground Sirdar.*	Coal	Deceased was engaged in withdrawing timbers from under roof coal at the edge of a goaf, when a mass of coal broke away suddenly. Several props were swayed out and deceased was struck down and killed instantly before he could escape. Inspection and inquiry made.
65	21st December, 3 P.M.	Katras mine, Katrasgarh P. O., Bihar and Orissa.	Nowagarh Coal Co., Ld.	Bhim Meab, (*m.*), 28, *Roof-dresser.*	Coal	Whilst deceased was walking into the 'workings,' he was killed by the fall of a mass of stone, 13′ 0″×5′ 6″×1′ 6″, which fell from the roof 5 feet above. Inspection and inquiry made.
			(*b*) **Falls of sides**—(*56 deaths*).			
66	8th January, 12-30 P.M.	Khas Jharia mine, Jharia P. O., Bihar and Orissa.	Khora Ramji	Matla Manjhi, (*m.*), 24, *Coal-cutter.*	Coal	Deceased was ordered to cut coal inside a gallery which was being driven through the middle of a pillar. He disobeyed orders and undermined the corner of the pillar until a mass of about one ton of coal fell from a 'slip.' The coal fell on to him from a height of 9 feet. He sustained injuries which resulted in death within half an hour. Inspection and inquiry made.

67	26th January, 0-5 A.M.	Charanpur mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ld.	Bisu Turi, (*m.*), 28, *Miner.*	Coal	Deceased was killed by a mass of overhanging coal, measuring 7′ 0″ × 6′ 6″ × 4′ 6″, falling from between two converging "slips" in a pillar under extraction. Inspection and inquiry made. (*See Report, page 8.*)
68	31st January, 10 A.M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Bomba Turi, (*m.*), 32, *Miner.*	Coal	The deceased and another man were cutting the corner of a pillar which formed the support for some roof coal. They had been previously warned not to do so. Whilst so doing, a mass of 10 tons of coal fell on to them. Deceased was killed instantly, and his companion was seriously injured. Inspection and inquiry made.
69	22nd February, 5-15 A.M.	Bagdiggi mine, Jharia P. O., Bihar and Orissa.	C. J. Smith	Khudu Deswali, (*f.*), 30, *Coal-carrier.*	Coal	Deceased carried coal for two coal-cutters, who were employed in dressing down overhanging coal from a pillar. Whilst sitting down at the corner of the opposite pillar, she was killed on the spot by a mass of coal, weighing about ¾ ton, which fell from a height of 22 feet. Inspection and inquiry made.
70	20th February, 3 P.M.	Phuletto mine, Tavoy P. O., Burma.	Phuletto Mining Syndicate	Whar Nar, (*m.*), 29, *Mining coolie.*	Wolfram	Whilst deceased was drilling in an open cut, half a ton of earth fell on him from a height of 9 feet. He sustained injuries from which he died three months afterwards. His party had been instructed to bar down this particular piece of side, but had neglected to do so.
71	2nd March, 10 P.M.	Tikak (Upper) mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Chatbhakta Brahmin (Nepali), (*m.*), 25, *Tub-filler.*	Coal	Whilst deceased was loading coal in an 'opening,' 18′ 0″ × 15′ 0″ × 6′ 0″ high, he was injured by a mass of about 1 cwt. of coal, which fell from the side. He died a month later. Inspection and inquiry made.
72	6th March, 3 A.M.	Ekra Khas mine, Bansjora P. O., Bihar and Orissa.	Maharaja M. C. Nandi	Anu Manjhi, (*m.*), 25, *Coal-cutter.*	Coal	Deceased was told to cut floor coal in a gallery. During the absence of the officials he left his working place, broke down a fence and began to cut coal from the corner of a pillar. He was killed on the spot by a mass of coal, weighing about 6 tons, which fell on to him from a height of 20 feet. Inspection and inquiry made.
73	7th March, 4 A.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Guhi Bauri, (*m.*), 32, *Coal-cutter.*	Coal	Deceased and another coal-cutter, with four female carriers, were employed in dressing a pillar, 26 feet high, in old workings. They left their appointed working place and undermined the corner of another pillar, until a fall of about 10 tons of coal occurred. They were struck by the falling coal. Deceased died a few hours later and the other man was seriously injured. Inspection and inquiry made.
74	15th March, 1 P.M.	Alkusa mine, Kusunda P. O., Bihar and Orissa.	Kanga & Co.	Pitan Rai, (*m.*), 35, *Coal-cutter.*	Coal	Whilst robbing coal from a pillar, deceased was struck by a mass of about 10 cwts. of coal, which fell from the side, from a height of 10 feet. He died about three hours later. Inspection and inquiry made.
75	2nd April, 2 P.M.	Ena mine, Jharia P. O., Bihar and Orissa.	North-West Coal Co., Ld.	Kubir Bauri, (*m.*), 18, *Coal-cutter.*	Coal	Deceased was ordered to cut floor coal in a gallery, 15 feet high. He undermined the corner of a pillar close to his working place and brought about the fall of a mass of about 5 tons of coal. He was struck by the falling coal and suffered injuries, to which he succumbed an hour later. Inspection and inquiry made.
76	27th March, 8-30 A.M.	Pagaye mine, Tavoy P. O., Burma.	Rangoon Mining Co., Ld.	Aunontaw Muduly, (*m.*), 25; Beadiah Bhoy, (*m.*), 28, *Contractor's coolies.*	Wolfram	The two deceased were under-cutting the side of an open working with the result that a fall of side occurred and buried them. They were killed instantly.
77	16th May, 10 A.M.	New Peepratand mine, Mohuda P. O., Bihar and Orissa.	P. Mukherji & Co.	Chotu Mahato, (*m.*), 30, *Earth-cutter.*	Coal	Deceased was cutting a foundation trench in an incline. Whilst so doing, a mass of earth, weighing about 2 cwts., fell from the side on to him. He died 12 hours later. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*contd.*			
			(*b*) Falls of sides—*contd.*			
78	20th May, 11-30 A.M.	North Lutchipur mine, Sitarampur P. O., Bengal.	North Lutchipur Coal Co.	Manik Manjhi, (*m.*), 25; Badan Manjhi, (*m.*), 18, *Coal-cutters.*	Coal	The two deceased, with other persons, were at work removing a mass of stone and earth which had fallen from the side of an incline cutting 30 feet deep, when another "slip" occurred, and five of them were partially buried under the fall. The two deceased died from the injuries they received and the three others were injured. Inspection and inquiry made.
79	14th May, 10-30 A.M.	Pagaye mine, Tavoy P. O., Burma.	Bombay-Burmah Trading Corporation, Ld.	Dasoo, (*m.*), 30; Bhimoo, (*m.*), 25, *Tributors.*	Wolfram	The two deceased, although warned to cease, continued to work in a cutting which had become dangerous, were instantly killed by a large fall of side. Inspection and inquiry made.
80	6th May, 1 P.M.	Tagu Mayingyi mine, Mergui P. O., Burma.	U. Shwe Thi	Maung Zan, (*m.*), 25; Ba Kin, (*m.*), 27, *Miner's tributors.*	Wolfram	The two deceased and another man, who was injured, took refuge from the heat of the day in an abandoned drift. While they were sitting there a collapse of the sides of the drift occurred and they were buried under the fall, being found to be dead when extricated half an hour afterwards.
81	29th May, 9-30 A.M.	Bhowra mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Nago Bhuiya, (*m.*), 34, *Miner.*	Coal	Whilst a miner, against orders, was under-cutting a pillar, a large mass of coal, weighing about 1½ tons, fell from the face of the pillar to the ground and knocked out 3 props. Deceased and another man were struck by two of the falling props, the former being instantly killed whilst the latter received severe scalp wounds. Inspection and inquiry made.
82	31st May, 1-30 P.M.	Charanpur mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ld.	Lukhi Majhian, (*f.*), 30, *Coal-carrier.*	Coal	Deceased, against orders, started to load some coal which had been blasted down from a pillar in course of extraction, before the roof and side had been examined. A piece of coal, measuring 2′ 0″ × 1′ 9″ × 0′ 9″, fell from a height of 10 feet, ricochetted and struck her on the left leg. She sustained a comminuted fracture and died of heart failure thirty-five hours later. Inspection and inquiry made.
83	5th May, 1 A.M.	Alkusa North mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Kola Meah (*m.*), 18, *Coal-carrier.*	Coal	Deceased was killed by a mass of side coal, weighing about 2½ tons, which fell from the side of a pillar on to him. It was suspected that he was robbing the pillar at the time. Inspection and inquiry made.
84	26th May, 2 P.M.	Pagaye mine, Tavoy P. O., Burma.	Rangoon Mining Co., Ld.	Khaytoo Boonyar, (*m.*), 30, *Contractor's coolie.*	Wolfram	Whilst deceased was working in an "open cut" a large mass of loose rock suddenly split away from the side and killed him instantly. Inspection and inquiry made.

85	29th June, 4 A.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Bhagwandin Passi, (*m.*), 38, *Coal-cutter.*	Coal	Deceased was standing on a ladder and engaged in drilling a shot-hole in overhanging coal in a gallery 27 feet high. Part of the coal, measuring 12′ 0″ × 6′ 0″ × 3′ 0″ and weighing 8 tons, fell prematurely. He was struck down and sustained injuries to which he succumbed within half an hour. Inspection and inquiry made.
86	29th June, 3 P.M.	South Kujama mine, Jharia P. O., Bihar and Orissa.	Bagdiggi Kujama Collieries, Ld.	Ganu Mallik, (*m.*), 27, *Coal-cutter.*	Coal	Deceased was one of a gang of eight coal-cutters employed in extracting a pillar in a "working," 15 feet high. He went through a fence into the goaf and began to rob coal from the reverse side of the pillar. A mass of some four tons of coal fell on to him from the side at a height of 4 feet. He was severely injured and died within an hour. Inspection and inquiry made.
87	29th June, 10 A.M.	Borrea mine, Sitarampur P. O., Bengal.	New Beerbhum Coal Co., Ld.	Gopi Manjhi, (*m.*), 25, *Coal-cutter.*	Coal	Deceased was dressing down some overhanging coal from the side of a pillar, in course of extraction, when a portion of it, measuring 8′ 0″ × 3′ 0″ × 5′ 0″, fell over without warning from a height of 10 feet. His right leg was pinned under the coal. He sustained a comminuted fracture of the right leg and died on the way to hospital, four and half hours later. Inspection and inquiry made.
88	3rd July, 1-30 P.M.	Zawe mine, Mergui P. O., Burma.	Saw Lein Lee . .	Mg. Bwin, (*m.*), 40, *Mining coolie.*	Wolfram .	Deceased was going to his work up the side of a steep excavation. He was struck by a landslip and buried in the excavation, dying of suffocation.
89	6th July, 3 P.M.	Barari mine, Jharia P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Sashi Baurin, (*f.*), 22, *Coal-carrier.*	Coal .	While a coal-cutter was robbing coal from the side of a pillar, 24 feet high, and his wife was loading the coal on to a basket, a mass of coal, 15′ 0″ × 10′ 0″ × 1′ 6″ thick, fell on to her from a height of 4 feet. She was killed on the spot. Inspection and inquiry made.
90	13th July, 2 P.M.	Lutchipore mine, Sitarampur P. O., Bengal.	Lutchipore Coal Co., Ld.	Gonga Roy, (*f.*), 35, *Coal-carrier.*	Coal .	Deceased went through a fence to rob loose coal from the side of a pillar. A mass of side coal, measuring 12′ 0″ × 9′ 0″ × 1′ 0″, fell over and a portion of it struck her before she could escape, causing internal injuries from which she died 18 hours later. Inspection and inquiry made.
91	22nd July, 8-30 A.M.	Shivrajpur mine, Shivrajpur P. O., Bombay.	Shivrajpur Syndicate, Ld.	Mohidin Gutti, (*m.*), 35, *Timberman*; Ramdeo Gopi, (*m.*), 25, *Assistant Timberman.*	Manganese.	While the two deceased were preparing the ground for putting new timbers, they were caught by a fall of side. Mohidin Gutti was killed instantly and Ramdeo Gopi died in half an hour. Inspection and inquiry made.
92	31st July, 5-30 A.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld. .	Jhari Bhuiya, (*m.*), 55, *Coal loader.*	Coal .	While some pillars, 22 feet in height, were being extracted, a mass of side coal, weighing about 10 tons, fell from the side at a height of 6 feet. Deceased was struck down and killed on the spot. Inspection and inquiry made.
93	4th August, about 4-30 P.M.	Seinbon mine, Tavoy P. O., Burma.	Moung Po U. . .	Moung San Yin, (*m.*), 32, *Clerk*; Moung Shwe E, (*m.*), 28, *Coolie.*	Tin .	Whilst sluicing for tin ore in a drain, a mass of earth fell from the side, owing to an unusual fall of heavy rain, and killed the two deceased.
94	7th August, 1 P.M.	Balaghat mine, Balaghat P. O., Central Provinces.	Central Provinces Prospecting Syndicate, Ld.	Jhalli, (*f.*), 55, *Earth-worker.*	Manganese	Deceased was sitting 5 feet from a rock face, 12 feet high. About 8 tons of rock suddenly fell from the face without warning and killed her.
95	7th August, 4-45 P.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Birbahadur Kami, (*m.*), 32, *Tub-filler.*	Coal .	Deceased was working in an 'opening' 18 feet high, and was injured by a piece of coal, about 182 lbs. in weight which rolled down the 'opening' on to him. He died a week later.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			FALLS OF ROOF AND SIDES—*concld.*			
			(*b*) **Falls of sides**—*concld.*			
96	1st September, 6-30 A.M.	Sunkerpur mine, Ukhara P. O., Bengal.	Burn & Co., Ld.	Bhagabati Sinha, (*m.*), 18, *Miner.*	Coal	Deceased went into a fenced area to rob a pillar. Whilst so doing, a mass of side coal, weighing about 3 tons, fell on to him. He died 17 hours later. Inspection and inquiry made.
97	12th September, 12-30 P.M.	Bhulanbararee mine, Jharia P. O., Bihar and Orissa.	Bhulanbararee Coal Co., Ld.	Budhan Kole, (*m.*), 24, *Coal-cutter.*	Coal	Deceased passed through a fence into old workings and began to cut coal from the corner of a pillar, 28 feet high. He was killed by a mass of coal weighing about 4 tons, which fell from a height of 12 feet. Inspection and inquiry made.
98	14th September, 11-30 A.M.	Parbad (Pahari) mine, Jharia P. O., Bihar and Orissa.	Laxmi Colliery Co.	Piru Mahato, (*m.*), 20, *Earth-cutter*; Radhi Mahatan, (*f.*), 14, *Earth-carrier.*	Coal	Whilst the two deceased were loading a basket in a quarry, 23 feet to 55 feet deep, a slab of sandstone, 7′ 0″×3′ 3″×3′ 0″, fell from the side at a height of 4 feet. Radhi was killed on the spot and Piru died within half an hour. Inspection and inquiry made.
99	19th September, 3-30 P.M.	Bokaro mine, Bokaro P. O., Bihar and Orissa.	East Indian Railway Co., Ld., and Bengal Nagpur Railway Co.	Sukia Kole, (*f.*), 14, *Earth-carrier.*	Coal	While working at the earth overburden, overlying the coal in an open working, deceased was killed by a fall of earth from the side, 9′ 0″×6′ 0″×0′ 6″.
100	20th October, 1 A.M.	Dishergarh mine, Dishergarh P. O., Bengal.	Equitable Coal Co., Ld.	Lalla Maharaj, (*m.*), 40, *Underground Sirdar.*	Coal	Deceased was sounding the roof with a 'bunter,' preparatory to dressing down some loose coal on the side of a pillar, when a piece of coal, measuring about 4′ 0″×2′ 0″×1′ 6″, broke away. He slipped and fell and the coal rolled on to his left thigh, fracturing it. He died in hospital 30 hours later. Inspection and inquiry made.
101	22nd October, 3 P.M.	Bansjora mine, Bansjora P. O., Bihar and Orissa.	Bansjora Coal Co., Ld.	Rasik Turi, (*m.*), 36, *Coal-cutter.*	Coal	A 6 feet "cut" was being taken at the top of a pillar in a seam, 24 feet in thickness. A piece of coal, weighing about 82 lbs., broke away from the side. Deceased who was working on a narrow ledge of coal, 4 feet in width, at the top of the pillar, jumped backwards to escape the falling coal and fell a distance of 18 feet to the ground. He sustained a compound fracture of the left leg and died in hospital three days later. Inspection and inquiry made. (*See Report, page 8.*)
102	25th October, 4 P.M.	Goneshpur mine, Katrasgarh P. O., Bihar and Orissa.	Economic Coal Co., Ld.	Chatu Mahato, (*m.*), 26, *Coal-cutter.*	Coal	Deceased broke down a fence in a disused gallery and commenced to rob the corner of a pillar, when a mass of side coal, weighing about 2 tons, fell over on to him, killing him instantly. Inspection and inquiry made.
103	1st November, 6-45 A.M.	Ekra Khas mine, Bansjora P. O., Bihar and Orissa.	Maharaja M. C. Nandi	Siba Pandey (*m.*), 20; Fulo Singh, (*m.*), 40, *Coal-cutters.*	Coal	The two deceased, contrary to orders, were undercutting side coal in a quarry, when the coal and a portion of the overburden fell over and buried them. Siba Pandey was suffocated and Fulo Singh sustained serious injuries to the spine and died four days later. Inspection and inquiry made.

104	21st October, 11-30 A.M.	Taungpila mine, Tavoy P. O., Burma.	Quah Cheng Guan . .	Maung Zone, (*m.*), 38, *Miner.*	Wolfram .	Deceased, while working in an "open cut", 7 feet deep, was killed by a fall of the hanging wall, which he had undercut and had left unsupported. Inspection and inquiry made.
105	21st October, 7-30 A.M.	Meke Myebya mine, Tavoy P. O., Burma.	Lim Kyee Yan . .	Maung Gyi, (*m.*), 30, *Mining-coolie.*	Wolfram .	Deceased was working in an "open cut", the sides of which were 7 to 8 feet high. He was struck on the forehead by the handle of his pick, owing to a fall of earth, and rendered unconcious. He was then buried by a further fall. The body was recovered within 20 minutes of the accident, but life was found to be extinct.
106	26th October, 4 P.M.	Saphi mine, Rajauli P. O., Bihar and Orissa.	Radha Kanta Lal . .	Barho Teli, (*m.*), 40, *Labourer.*	Mica . .	Deceased was struck by falling stone, from a height of 10 feet, from the side of the mine and succumbed to the injuries received. Another man was slightly injured.
107	9th November, 4-30 A.M.	Chanch mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ld. .	Gubi Lohar, (*m.*), 29, *Miner.*	Coal . .	Deceased passed through a fence to rob some coal in a goaf. A mass of side coal, weighing about 2 tons, fell on to him from a height of 6 feet. He was killed instantly. Inspection and inquiry made.
108	14th November, 9 P.M.	Sikdardih mine, Giridih P. O., Bihar and Orissa.	E. O. R. Myers . .	Sake Roy, (*m.*), 36, *Coal-cutter.*	Coal . .	Deceased was bringing down some side coal which he had previously undercut. Whilst so doing, a mass of coal, weighing about 4 cwts., fell on to him from a height of 4 feet. He sustained a compound fracture of the thigh and expired before aid could be rendered. Inspection and inquiry made.
109	13th December, 7 A.M.	Kenwadih mine, Jamadoba P. O., Bihar and Orissa.	Harriladih Coal Co., Ld. .	Gunpat Turi, (*m.*), 35, *Miner.*	Coal . .	Deceased was unlawfully undercutting the corner of a pillar. Whilst so doing a mass of coal and stone, about 1 ton in weight, fell on to him. He was killed instantly. Inspection and inquiry made.
110	28th November, 11 A.M.	Nwalabo mine, Tavoy P. O., Burma.	Tata Sons & Co., Ld. .	Nachhu, (*m.*), 20, *Ore Extracting coolie.*	Wolfram .	While dressing the side of a cutting about 14 feet high, deceased was killed by a large fall of earth from the side of the cutting.
111	19th December, 10-30 A.M.	Budruchuck mine, Sijua P. O., Bihar and Orissa.	Budruchuck Coal Mining Co., Ld.	Galoo Bhar, (*m.*), 28, *Propping coolie.*	Coal . .	Deceased was assisting in putting up a prop when a piece of coal and stone which was overhanging from the side of a pillar fell on to his back. He died in hospital nearly three months later.
112	25th December, 11-30 P.M.	Kantapahari mine, Panuria P. O., Bengal.	Burrakur Coal Co., Ld.	Kamini Mejhian, (*f.*), 18, *Coal-carrier.*	Coal . .	Deceased was filling coal at the side of a pillar, when a piece of coal, weighing about 2¼ cwts., fell on to her from a height of 8 feet, killing her instantly. Inspection and inquiry made.
113	29th December, 4 A.M.	Kendwadih mine, Kusunda P. O., Bihar ond Orissa.	East Indian Coal Co., Ld.	Gour Bauri, (*m.*), 25, *Coal-cutter.*	Coal .	Deceased passed through a fence and undercut the side of a pillar, 18 feet high. He was killed by the fall of about one ton of coal, from a height of 9 feet. Inspection and inquiry made.
			IN SHAFTS—*(21 deaths.)*			
			OVERWINDING—*(3 deaths).*			
114	4th March, 1-30 P.M.	Malkera Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Asraf Meah, (*m.*), 30, *Hookman*; Karim Meah, (*m.*), 28, *Mason.*	Coal .	The deceased, Asraf Meah, was being lowered in one of the cages in a shaft, 533 feet deep. The deceased, Karim Meah, was being raised in the other cage. The winding engineman lost control of the winding engine and the ascending cage was drawn up to the top of the head-gear. The cage chains broke and the cage dropped to the bottom of the shaft. The other cage struck the landing platform at the bottom with violence. Karim was killed on the spot and Asraf sustained injuries to which he succumbed 36 days later. The winding engine was fitted with an over-winding prevention device, but it failed to act. Inspection and inquiry made. (*See Report, page 9.*)

APPENDIX II—*contd.*

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			IN SHAFTS—*contd.*			
			OVERWINDING—*concld.*			
115	15th December, 3-30 P.M.	Sudamdih mine, Bhoiudih P. O., Bihar and Orissa.	Empire Coal Co., Ld.	Sukar Kahar, (*m.*), 38, *Sinker.*	Coal	During the temporary absence of the winding engineman, the banksman attempted to lower deceased in the bucket at a sinking shaft, 385 feet deep. He lost control of the engine and the bucket plunged violently into water, 30 feet deep, at the bottom of the shaft. When the body was recovered next morning, death was found to have been due to a fracture of the skull. Inspection and inquiry made.
			WHILST ASCENDING OR DESCENDING BY MACHINERY—*(6 deaths).*			
116	3rd March, 1-30 P.M.	Akhalpur mine, Nandi P. O., Bengal.	Hurriladih Coal Co., Ld.	Niri Baurin, (*f.*), 35, *Coal-carrier.*	Coal	Deceased fell out of the cage, when descending a shaft 230 feet deep and was killed instantly. She was alone in the cage. Safety bars were provided, but it is doubtful whether they were put in the safety position by the onsetter. Inspection and inquiry made.
117	17th April, 9-30 P.M.	Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Jadagir, (*m.*), 51, *Trollyman.*	Coal	Deceased was in a cage which had just commenced to be lowered in a shaft. He leaned out of the cage to pick up his shoes which were lying on the pit bank. His head was caught between the top of the cage and the flat sheets. He sustained a fracture of the cheek bone and died 9 hours later. Inspection and inquiry made.
118	10th May, 1-30 P.M.	Barmondia mine, Sitarampur P. O., Bengal.	Damuda Coal Co., Ld.	Abilass Bauri, (*m.*), 18, *Underground Trammer.*	Coal	Deceased stepped off the descending cage before it reached the shaft bottom, and fell a distance of 8 feet on to the plates. He sustained a fracture of the right thigh and died from shock 15 hours later. Inspection and inquiry made.
119	11th November, 2-45 P.M.	Bhelatand mine, Sijua P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Pattu Singh, (*m.*), 30; Bahan Singh, (*m.*), 34, *Stone-cutters.*	Coal	The two deceased with one other man, having finished their work in a shaft, were waiting for the bucket to be raised, when the upper flange of the steam valve of the winding engine blew off. The engine ran away and the bucket with its occupants was precipitated to the bottom. Six hundred feet of spare rope on the drum of the engine were unwound and fell upon the men killing the two deceased. The other man escaped with a slight scalp wound. Inspection and inquiry made.

120	31st December, 7-30 P.M.	West Gopalichuck mine, Bansjora P. O., Bihar and Orissa.	Gopalichuck Coal Co., Ld.	Gobinda Dosadh, (*m.*), 35, *Onsetter.*	Coal	Deceased fell out of the cage whilst being raised in a shaft, 366 feet deep, and was killed instantly. Inspection and inquiry made.
			FALLING FROM THE PART OF THE WAY DOWN—(*4 deaths*).			
121	4th January, 9 A.M.	Lutchipur mine, Sitarampore P. O., Bengal.	Lutchipur Coal Co., Ld.	Alhad Sing, (*m.*), 28, *Stone-cutter.*	Coal	One half of a sinking scaffold was being lowered in a shaft, when it caught a projecting ledge of stone. Deceased, who was on the other half of the scaffold, jumped on to the half which was being lowered and succeeded in freeing it, but the resulting jerk caused the rope suspending it to slip on the drum of the winch to which it was attached. Deceased was thrown off and fell to the bottom of the shaft, a distance of about 100 feet. He was killed instantly. Inspection and inquiry made.
122	31st July, 5-30 P.M.	Jibutil mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	Chenna, (*m.*), 28, *Coolie.*	Gold	Deceased was climbing up the ladder in a winze, 100 feet deep, when he fell down a distance of about 40 feet. He sustained a compound fracture of the skull and other serious injuries and died almost immediately. Inspection and inquiry made.
123	28th October, midnight.	Pootki mine, Bansjora P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Nripath Mondal, (*m.*), 40, *Stone-cutter.*	Coal	Deceased was working with other stone-cutters, who were widening a shaft. All were standing on a staging suspended in the shaft. Deceased fell from the staging to the bottom of the shaft, a distance of 100 feet, and was killed instantly. Inspection and inquiry made.
124	28th December, 9 A.M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Jhibu Mahato, (*m.*), 33, *Main gallery driver.*	Coal	The covering of a mid-landing in a shaft had been removed, and not replaced, by persons who had been repairing joints in the steam pipes below it. Deceased, unaware of this and unable to set on account of steam at the shaft bottom, walked into the opening and fell a distance of 118 feet to the bottom landing. He was killed instantly. Inspection and inquiry made.
			THINGS FALLING FROM THE SURFACE—(*3 deaths*).			
125	14th May, 12-30 P.M.	Kujama mine, Jharia P. O., Bihar and Orissa.	Kanji and Shamji Nanji	Mutru Kurmi (Mahato), (*m.*), 25, *Stone-cutter.*	Coal	Whilst a banksman was changing the coupling chains, preparatory to attaching a water bucket to the rope at the top of a sinking shaft, 210 feet deep, he allowed the chains to fall down the shaft where 9 stone-cutters were at work. The chains fell upon the deceased and killed him. Inspection and inquiry made.
126	4th November, 2 P.M.	Kuardih mine, Kalipahari P. O., Bengal.	Kuardih Coal Co., Ld.	Ibrahim Mohamed (*m.*), 25, Mustapha Abdul Wahab, (*m.*), 35, *Coal-cutters.*	Coal	The two deceased were descending a shaft in the cage, when a plank, measuring 8′ 0″×0′ 10″×0′ 2½″, fell from the top of the head-gear down the shaft and struck the up-coming cage. The impact caused the cage to oscillate and collide with the other one. Both men were thrown out and fell a distance of 70 feet to the shaft bottom. Ibrahim Mohamed was killed instantly, and Mustapha Wahab died six hours later. Inspection and inquiry made.
			THINGS FALLING FROM PART OF THE WAY DOWN—(*3 deaths*).			
127	27th January, 5-30 A.M.	Parbelia mine, Dishergarh P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Galup Singh, (*m.*), 30, *Shaft sinker.*	Coal	Deceased and others were working at the bottom of a sinking shaft when a piece of stone, measuring 2′ 0″×2′ 6″×0′ 4″, fell from the side through a distance of 40 feet. Deceased was killed instantly, and one other man received injuries to the head and shoulders. Inspection and inquiry made.

Fatal Accident, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			IN SHAFTS—*concld.* **THINGS FALLING FROM PART OF THE WAY DOWN—*concld.***			
128	16th May, 3 P.M.	Kantapahari mine, Panuria P. O., Bengal.	Burrakar Coal Co., Ld.	Shaik Shariff, (*m.*), 21, *Fitter.*	Coal	Deceased was standing in a sinking bucket in a shaft, at a depth of 116 feet from the surface, while an electric sinking pump was being lowered. One of the clamps on the pump cable came into contact with a temporary scaffold, fixed in the shaft, sixty feet above, and loosened a batten, measuring 4′ 0″×0′ 10″×0′ 1½′, which fell down the shaft and struck deceased on the head, killing him instantly. Inspection and inquiry made.
129	5th December, 1 A.M.	Parbelia mine, Dishergarh P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Doulat Dosadh, (*m.*), 45, *Stone-cutter.*	Coal	Deceased was working at the bottom of a sinking shaft, when a small piece of stone fell from the side of the shaft on to his neck. He was killed instantly. Inspection and inquiry made.
			MISCELLANEOUS—(*2 deaths*).			
130	25th March, 1 A.M.	Jibutil mine, Morriston P. O., Madras.	Jibutil (Anantapur) Gold Mines, Ld.	K. Raman, (*m.*), 22, *Underground Contractor.*	Gold	Deceased walked into the ladderway opening at a level. He fell a distance of about 35 feet and fractured his skull. Death was instantaneous. Inspection and inquiry made.
131	6th October, 9 A.M.	Gazlitand mine, Sijua P. O., Bihar and Orissa.	New Manbhum Coal Co., Ld.	Bahadur Chamar, (*m.*), 25, *Tub-pusher.*	Coal	Whilst deceased was pushing a loaded tub out of the cage, at the top of a winding shaft, the rear end of the cage tilted down, as it was not properly seated on the keps. The tub ran back and pinned down deceased on the floor of the cage. His chest was severely crushed and his lungs were ruptured, causing death a few minutes later. Inspection and inquiry made.
			EXPLOSIVES—(*9 deaths*).			
132	11th January, 2 A.M.	Khost mine, Khost P. O., Baluchistan.	North Western Railway.	Gurmukh Singh, (*m.*), 27, *Miners' mate.*	Coal	Deceased was firing a round of seven shots underground. He had lighted four shots and, while lighting the fifth, one of the shots, previously lit, exploded and killed him.
133	11th January, 11 A.M.	Hataria mine, Kodarma P. O., Bihar and Orissa.	Hoare Miller & Co.	Nagendra Nath Ghose, (*m.*), 30, *Fitter mistry.*	Mica	Deceased was examining a petrol pump underground with an open light. An explosion of petrol occurred burning deceased and two others. Deceased died from his injuries 11 days afterwards.
134	16th May, 7 A.M.	Craddock mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ld.	Daraksah Gond, (*m.*), 25, *Underground Sirdar.*	Coal	Three shot holes in the corner of a pillar had been prepared by the shot-firer. Deceased, who was a sirdar, stopped him from firing them until some props had been withdrawn. While the shot-firer was preparing other shot holes, deceased, without being authorised to do so, fired the shots. He was struck by the blown down pieces of coal and killed.

135	5th May, noon.	Tilana mine, Ajmer P. O., Rajputana.	Rajputana Mica & Minerals Co., Ld.	Ghisa Lall, (*m.*), 19, *Labourer.*	Mica . .	Deceased was sitting by some gun-powder which had been spread out to dry. In some way or other, the powder exploded and deceased was burnt so severely that he died 9 days later.
136	12th June, 10-30 A.M.	Jamadoba mine, (No. 1 Division), Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Janki Dosai, (*m.*), 36, *Miner.*	Coal . .	Whilst deceased was drying some gun-powder in the sun, a spark from a fire fell upon the powder and ignited it. He was severely burnt and died four days later. Inspection and inquiry made.
137	30th August, 10 A.M.	Charanpur mine, Charanpur P. O., Bengal.	Reliance Coal Co., Ld. .	Bhairab Pasi, (*m.*), 30, *Coal-cutter.*	Coal . .	Deceased was drying some gun-powder at, or near, his cooking stove, when it exploded. He was burnt about the face, arms and legs, and died 9 days later. Inspection and inquiry made.
138	9th December, 8 P.M.	Banksimulla mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ld. .	Manik Manjhi, (*m.*), 48; Budrai Manjhi, (*m.*), 43, *Miners;* Srimati Mejhian, (*f.*), 38, *Miners' Kamin.*	Coal .	The deceased were killed by an explosion of gun-powder in a miners' hut; they were probably manufacturing cartridges, for shot firing underground at the time. Inspection and inquiry made. (*See Report, page 9.*)
			IRRUPTIONS OF WATER or FALLING INTO WATER—(*6 deaths*).			
139	21st June, 0-15 A.M.	Kendwadih mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Gungri Kole, (*f.*), 22, Panwa Kole, (*f.*), 20, *Coal-carriers;* Sukri Kole, (*f.*), 2, *Not employed.*	Coal . .	Owing to an embankment on the surface giving way during a very heavy fall of rain, a large volume of water flowed into the mine through surface subsidences. The three deceased were swept away and drowned. Inspection and inquiry made. (*See Report, page 9.*)
140	18th September, between 7 A.M. & 8 A.M.	Pursoda mine, Ramtek P. O., Central Provinces.	Central India Mining Co., Ld.	Ghoonia, (*m.*), 21, *Fireman.*	Manganese	Deceased was found drowned in the mine excavation. He had apparently gone there to wash himself and had slipped into the water in the excavation.
141	3rd November, 1-30 P.M.	Tirody mine, Tirody P. O., Central Provinces.	Rao Sahib D. Laxminarayan.	Satiram, (*m.*), 22, *Coolie.*	Manganese	Deceased was drowned in a water-logged portion of the mine, in which, against orders, he was bathing.
142	4th November, 10 A.M.	Sukli mine, Kamptee P. O., Central Provinces.	Central India Mining Co., Ld.	Mathi Ahir, (*m.*), 40, *Miner.*	Manganese	Deceased was drowned in a disused portion of the mine.
			HAULAGE—(*22 deaths*).			
143	11th January, 9-30 P.M.	Kankani mine, Banajora P. O., Bihar and Orissa.	Eastern Coal Co., Ld. .	Mongal Dhobi, (*m.*), 25, *Underground-hookman.*	Coal . .	A train of six full tubs and two empty tubs was being raised up an incline when the rope broke and the train ran back. Deceased was caught and crushed against the side of a pillar, receiving injuries from which he died two hours later. Inspection and inquiry made.
144	29th January, 4 A.M.	Malkera-Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Bandan Singh, (*m.*), 19, *Coal-carrier.*	Coal . .	Deceased, whilst lying asleep on the rails at the foot of a haulage road, was killed by a runaway tub. The runaway was due to the opening out of a D link coupling. The pin of the D link had, probably, not been inserted. Inspection and inquiry made. (*See Report, page 10.*)
145	7th February, 4-50 P.M.	Ledo (Old West) mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Sitaram Teli, (*m.*), 21, *Signaller.*	Coal .	Deceased, against orders, was riding out of the mine on a train of 28 loaded tubs, which was being hauled on a level road. He was found dead close to a manhole. Death was due to injuries to the head. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			HAULAGE—*concld.*			
146	1st March, 4 P.M.	Alkusa South mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Mohar Turi, (*m.*), 25, *Coal-cutter.*	Coal	Whilst a train of eight empty tubs was being lowered down a haulage slope, the rope broke. Deceased, who was walking down the incline at the time, was run over and sustained injuries, to which he succumbed two days later. The rope was a new one. The engineman had so much slack rope on the drum that the train ran some distance down the slope before the slack was taken up. The resulting jerk snapped the rope. Inspection and inquiry made.
147	12th March, 3 P.M.	Albion mine, Nowagarh P. O., Bihar and Orissa.	Albion Coal Co., Ld.	Jagu Mahato, (*m.*), 11, *Bailing coolie.*	Coal	Whilst a train of six tubs was being hauled round a curve out of an underground landing, the single cylinder of the hauling engine got on the dead centre and it was necessary to lower the train a short distance. In the course of lowering, two tubs fell over on the inside of the curve. Deceased, who happened to be passing at the time, was crushed between the tubs and the side of the road. He died ten days later. Inspection and inquiry made.
148	28th March, 7-45 A.M.	Jamadoba mine (No. 1 Division), Jharia P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Khudro Dhobi, (*m.*), 25, *Fan engineman.*	Coal	Deceased jumped on a train of tubs which was being hauled up an underground incline. He fell off and was crushed between the tubs and the side of the road. He succumbed to his injuries on the following day. Inspection and inquiry made.
149	4th May, 8 P.M.	Bhatdih mine, Mohuda P. O., Bihar and Orissa.	Bengal Bhatdih Coal Co., Ld.	Padua Rajwaria, (*f.*), 30, *Coal-carrier.*	Coal	Deceased was pushing an empty tub along a tram road, rising at 1 in 25. Being without a light, she probably became alarmed by the noise of tubs coming in the opposite direction, on a parallel line. She left the tub and ran back, but the tub followed and ran over her. She sustained a compound fracture of the thigh and died six weeks later. Inspection and inquiry made.
150	2nd May, 11-50 P.M.	Madhuband mine, Katrasgarh P. O., Bihar and Orissa.	Jumuni Coal Co., Ld.	Hemia Mesh, (*f.*), 30, *Coal-carrier.*	Coal	Whilst a train of tubs was being drawn out of a level on a haulage incline, the haulage rope broke. The train ran back into the level, derailed and collided with an overturned tub in which deceased was sitting. She was killed instantly. The train was not provided with a drag. Inspection and inquiry made.
151	28th May, 1-30 P.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways & Trading Co., Ld.	Sewlall Jaisi, (*m.*), 22, *Timberman.*	Coal	Deceased was standing at the bottom of an underground self-acting incline. The men at the bottom of the incline omitted to fasten the empty tub to the rope, with the result that the loaded tub ran wild down the incline, running over deceased at the bottom and killing him.
152	26th July, 8 P.M.	Sudhi mine, Sitarampur P. O., Bengal.	Sudhi Coal Co., Ld.	Babulal Bauri, (*m.*), 35, *Lineman.*	Coal	Deceased was riding on the front of a train of tubs. Whilst so doing, he was struck by a bar set to support the roof. He sustained an injury to the spine and died one and-a-half months later. Inspection and inquiry made.

153	26th July, 1-15 A.M.	Ballarpur mine, Ballarpur P. O., Central Provinces.	Sir K. C. Daga & others	Irayah, (*m.*), 25, *Trammer.*	Coal	As a train of empty tubs was being lowered down a haulage plane, one tub became detached from the train and ran wild. Deceased was lying asleep at the bottom. He appears to have got up but was not able to get away in time. From his injuries he appears to have been squeezed between the empty tub and the side, or fell down heavily in his effort to get away. He died 8 hours later.
154	10th August, 10 A.M.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Paira Roy, (*m.*), 26, *Miner.*	Coal	Whilst deceased was riding on an empty tub which was being drawn up a haulage incline, the tub derailed and he was thrown off. He sustained injuries to the head and died of concussion of the brain. Inspection and inquiry made.
155	16th August, 8 A.M.	Sodepur mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Rakhal Bauri, (*m.*), 30, *Trammer.*	Coal	While a loaded tub was passing through a brattice door, it derailed and knocked out a prop, which fell upon deceased, breaking his neck. Inspection and inquiry made.
156	23rd August, 10 P.M.	Titulmuri mine, Sijua P. O., Bihar and Orissa.	Titulmuri Collieries, Ld.	Budhan Sonar, (*m.*), 35, *Hookman.*	Coal	Whilst a train of 8 empty tubs was being lowered down a haulage slope, the rope broke and the tubs ran wild. Deceased was run over and sustained injuries to which he succumbed within a few minutes. Inspection and inquiry made. (*See Report, page 11*).
157	20th September, 10 A.M.	Jamadoba mine, (No. 3 Division), Jamadoba P. O., Bihar and Orissa.	Tata Iron & Steel Co., Ld.	Agnu Bhuiya *alias* Gyan, (*m.*), 40, *Trammer.*	Coal	Whilst deceased and another trammer were pushing a loaded tub on a level tram line, they were overtaken by another tub which was being pushed by two other men. Deceased was crushed between the tubs. His spine was fractured and he died on the following day. Inspection and inquiry made.
158	24th September, 1-30 P.M.	Jharia Khas mine, Jharia P. O., Bihar and Orissa.	Standard Coal Co., Ld.	Dokalu Chamar, (*m.*), 35, *Coal-cutter.*	Coal	Whilst a coal-cutter and his wife were pushing an empty tub in bye, some other tubs ran wild from a siding and collided with the tub. Deceased who was pushing another tub was knocked down and sustained injuries, to which he succumbed five hours later. Inspection and inquiry made.
159	20th September, 9-30 P.M.	Khost mine, Khost P. O., Baluchistan.	North-Western Railway	Bagga, (*m.*), 26, *Bellman.*	Coal	Deceased was riding down a steep incline on a train of tubs. As the slope changed he raised his head which was crushed between the top of a tub and the roof.
160	4th October, 8 P.M.	Jealgora mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Khiri Baurin, (*f.*), 25, *Coal-carrier.*	Coal	Deceased was lying down on the side close to a curve in an underground tram line. A side-tipping tub of coal which was being pushed out, overturned and fell on to her. She sustained injuries from which she died 13 days later. Inspection and inquiry made.
161	6th October, 1 A.M.	South Bulliari mine, Kusunda P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Sanjo Majhian, (*f.*), 16, *Coal-carrier.*	Coal	Deceased appears to have been lying asleep just beyond the end of a level tram line in which there was no buffer stop. A miner pushed an empty tub over the end of the line. One of the wheels struck deceased on the head and killed her instantly. Inspection and inquiry made.
162	6th October, 10-30 A.M.	Sarakdih mine, Asansol P. O., Bengal.	Sarakdih Syndicate, Ld.	Kali Charan Bauri, (*m.*), 42, *Pump coolie.*	Coal	A train of fifteen empty tubs was being lowered down an incline, when the coupling of the last tub broke and released the tubs, which ran away down the incline. Deceased was overtaken by the tubs, knocked down and killed instantly. Inspection and inquiry made.
163	12th October, 9 A.M.	Jamgram mine, Kantapahari P. O., Bengal.	Burrakar Coal Co., Ld.	Dhanga Manjhi, (*m.*), 30, *Coal-cutter.*	Coal	Deceased, contrary to orders, went up a "jig" line when the tubs were in motion. His lamp went out and he fell in front of the descending tubs. He was struck on the chest by the front tub and sustained serious internal injuries, from which he died 4½ hours later. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			UNDERGROUND MACHINERY—(*2 deaths*)			
164	18th October, 3-30 A.M.	Jealgora mine, Jamadoba P. O., Bihar and Orissa.	East Indian Coal Co., Ld.	Sagar Manjhi, (*m.*), 22, *Coal-cutter.*	Coal	Deceased was lying down on the side of an underground tram line, in spite of being warned that tubs of coal were being let down by hand to the top of a "jig." A side-tipping tub overturned close to him and struck him. He sustained a fracture of the spine and ribs, and died almost immediately. Inspection and inquiry made.
165	3rd May, 5-30 P.M.	Benakuri mine, Toposi P. O., Bengal.	Benakuri Coal Co., Ld.	Rojoni Roy, (*m.*), 18, *Engine-driver.*	Coal	Deceased, whilst endeavouring to straighten and tighten some loose coils of rope on the drum of a haulage engine, was carried on to the top of the drum, where he was found in a badly mutilated condition. In the absence of eye-witnesses, it was presumed that the throttle lever of the engine was accidentally touched by deceased, or caught by a loose coil of rope and opened wide, causing the engine to race. The loose coils of rope struck a protective roofing fixed over the engine and brought it down upon deceased, who fell against the drum which was running at high speed. He died three hours later. Inspection and inquiry made. (*See Report, page 11.*)
166	26th November, 10 A.M.	Banksimulla mine, Charanpur P. O., Bengal.	Bengal Coal Co., Ld.	Makunda Moddok, (*m.*), 42, *Pump khalassie.*	Coal	Deceased was found entangled in the gearing of an electrically-driven pump. The pump was fenced and it was assumed, therefore, that deceased was caught in the gearing, whilst in the act of oiling the pump when it was in motion. Inspection and inquiry made.
			SUNDRIES UNDERGROUND—(*14 deaths.*)			
167	20th February, 3 P.M.	Kurhurbaree mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Bisun Dosadh, (*m.*), 35, *Miner.*	Coal	Deceased was blown over by an air blast following the unexpected fall of the main roof of an old goaf. He sustained dislocations of the left elbow and left hip and died 17 days later. Inspection and inquiry made.
168	19th March, 4 P.M.	Kurhurbaree mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Raghu Bhuia, (*m.*), 45, *Miner.*	Coal	Deceased was sitting on the edge of a "bench" or terrace, formed at the top of a pillar under extraction. He fell suddenly to the ground through a distance of 13 feet and fractured his skull. It is assumed that he was sleeping at the time. Inspection and inquiry made.
169	25th March, 3-30 P.M.	Kutchidhana mine, Ramakona P. O., Central Provinces.	Indian Manganese Co., Ld.	Daulot Kole, (*m.*), 55, *Coolie.*	Manganese	Owing to the collision of some tubs deceased got frightened and, in his fright fell off the step on which he was standing on to the next step, 5 feet below. He fell face downwards on some rock and received injuries from which he died three days later.

170	23rd May, 5-30 P.M.	Fularibad mine, Jharia P. O., Bihar and Orissa.	Khas Jharia Coal Co.	Dhanukdhari Mahato, (*m.*), 55, *Signaller.*	Coal	A coolie, being ordered to take a pair of tub wheels on an axle down a haulage slope, attempted to do so by rolling them on the tram rails. They slipped from his grasp and ran wild. His warning shouts alarmed deceased who, although he was sitting in a safe place, attempted to run along a level cross gallery. He tripped on a sloping bench of floor coal and fell heavily. He was assisted out of the mine and was not thought to be seriously hurt, but died on the following day. Inspection and inquiry made.
171	30th May, 4-50 P.M.	Chanch mine, Chirkunda P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Gobinda Chandra Baxi, (*m.*) 25, *Underground overman.*	Coal	Deceased was standing, superintending the withdrawing of some timbers from a goaf in a seam 9 feet thick. A portion of the "local" roof, measuring 5′ 0″ × 3′ 6″ × 1′ 0″, gave way suddenly and swayed out a prop, which struck him on the right temple. He died two and-a-half hours later of cereboral hæmorrhage. Inspection and inquiry made.
172	21st June, 7 A.M.	Mohpani mine, Mohpani P. O., Central Provinces.	Great Indian Peninsula Railway Co.	Luchoo Lodhan, (*f.*), 45, *Coal-carrier.*	Coal	Deceased was carrying some earth in a basket down some steps which had been cut in the splint coal between the top and bottom sections of the seam. The steps were worn and slippery and did not make a sharp cut on the edge of the tread. She slipped and received injuries from which she died on the following day. Inspection and inquiry made.
173	22nd June, 8 P.M.	Widnes mine, Tavoy P. O., Burma.	High Speed Steel Alloys Mining Co., Ld.	Ckaw Ki, (*m.*), 41, *Tributor.*	Wolfram	The sides of an "open cut" were being cleaned out. Deceased was standing on the floor of the "open cut" when the floor gave way, breaking through into an old unknown tunnel. This caused part of the side of the "open cut" to fall. Deceased fell into the old tunnel and was buried by the fall of earth.
174	23rd June, 4 P.M.	Pachaung mine, Tavoy P. O., Burma.	Wagon Pachaung Wolfram Mines, Ld.	Mam Pye, Burman, (*m.*), 35, *Tributor.*	Wolfram	Deceased was killed by being struck on the head by a falling stone, detached by a natural fall of earth from the hill side above where he was working in an excavation.
175	7th September, 6-30 A.M.	Sodepur (No. 7) mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Gayaram Bauri, (*m.*), 45, *Underground Sirdar.*	Coal	Deceased was found lying dead on an underground tram line. His legs were in contact with the delivery pipe of an electrically-driven pump. Although no marks were found on his body it was presumed that he had been electrocuted. Inspection and inquiry made.
176	23rd September, 12-30 P.M.	Malkera Choitodih mine, Katrasgarh P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Nizam Punjabi, (*m.*), 37, *Labourer.*	Coal	Deceased was one of a gang of men engaged in cleaning the bottom of a cage pit which had just been dewatered. The shaft bottom was lighted by a temporary arrangement of electric lamps. Electric current was supplied at 220 volts by a lead-covered cable, carried by a galvanized iron rope, suspended from planking on the surface. The insulation of the cable was defective. Deceased touched the cable accidentally, fell across it and remained there for a few minutes until removed. Prolonged artificial respiration was applied but failed to restore animation. Inspection and inquiry made. (*See Report, page 11*).
177	9th October, 12-30 P.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Janki Meah, (*m.*), 50, *Coal-cutter.*	Coal	Deceased was stepping on to a ladder at the top of a ledge of coal about 8 feet from the ground, which sloped away from the ledge, and was slippery. He missed his footing and, falling to the ground caught his knee against a heap of loose stones. He died in hospital 39 days later from suffocation and exhaustion. Inquiry made.
178	1st December, 12-10 P.M.	Ghusick mine, Kalipahari P. O., Bengal.	Ghusick and Muslia Collieries, Ld.	Indi Roy, (*m.*), 32, *Assistant fitter*; Indi Chosa, (*m.*), 25, *Pump-khalassie.*	Coal	The two deceased were sitting on the side of a shaft level, underneath a pipe, 3 inches in diameter, which conveyed steam to a pump inbye. When the stop valve on the surface was opened to start the pump, the packing blew out of a flanged joint in the pipe. Both of the men were badly scalded by the escaping steam and died several hours later. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			SUNDRIES UNDERGROUND—*concld.*			
179	2nd December, 2-30 P.M.	Durgapur mine, Chanda P. O., Central Provinces.	Chanda Coal Prospecting Syndicate, Ld.	Ramdoo, (*m.*), 43, *Coal-filler.*	Coal	Deceased was sitting on a coal tub which was run into by another tub which was being pushed by hand. He received injuries to his leg and died four weeks later.
			SURFACE BOILERS OR PIPES BURSTING—(*1 death.*)			
180	23rd July, 3 A.M.	Northern mine, Nowagarh P. O., Bihar and Orissa.	Northern Coal Co., Ld.	Sujayat Meah, (*m.*), 18, *Pump khalassie.*	Coal	Whilst a vertical boiler was under steam, the inner shell bulged in on two opposite sides of the fire grate and four of the rivetted stays pulled through. Steam escaping through these holes, broke down the fire grate. Deceased was found in a sitting position about 10 feet in front of the open door of the fire-box. He was scalded so severely that he died 6 hours later. Inspection and inquiry made.
			SURFACE RAILWAYS AND TRAMWAYS BELONGING TO THE MINE—(*5 deaths*).			
181	2nd April, 4 P.M.	Golukdih mine, Jharia P. O., Bihar and Orissa.	N. M. Chowdhury & Co.	Biadar Singh, (*m.*), 50, *Labourer.*	Coal	Deceased was run over by a locomotive whilst crossing a bridge. He succumbed to his injuries some 12 hours later. Inspection and inquiry made.
182	19th May, 11-30 A.M.	Jamadoba mine, Jamadoba P. O., Bihar and Orissa.	Tata Iron and Steel Co., Ld.	Durga Julhin, (*f.*), 45, *Labourer.*	Coal	Deceased was watching a train of tubs being lowered on a surface self-acting incline. As the train passed, an iron locker in the wheels of one of the tubs struck her. She sustained a lacerated wound above the knee and died from shock two days later. Inspection and inquiry made.
183	26th July, 10 A.M.	Mayo mine, Khewra P. O., Panjab.	Government of India	Mohomed Din, (*m.*), 30, *Fireman.*	Salt	Deceased fell off a locomotive engine which was drawing a train of tubs from the mine and was crushed by the wheels of one of the tubs. He died one and-a-half hours later. Inquiry made.
184	27th September. 6 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Sohagi Kole, (*f.*), 22, *Tub-filler.*	Coal	Deceased was run over and killed by a train of tubs on a surface incline.
185	9th October, 5-45 P.M.	Kutchidhana mine, Ramakona P. O., Central Provinces.	Indian Manganese Co., Ld.	Jangi, (*m.*), 40, *Transporting coolie.*	Manganese	Deceased, while pushing a tub on a surface tramway, was struck by another tub from behind. He died on the following day from concussion of the spine.

MISCELLANEOUS ON SURFACE—(*25 deaths*).

186	15th January, 6 A.M.	Kujama mine, Jharia P. O., Bihar and Orissa.	Kanji and Shamji Nanji	Sodagar Dom, (*m.*), 45, *Colliery sweeper.*	Coal	While passing, at night, over a bridge, 22 feet high, carrying a tram road over river, deceased somehow fell through the fencing of the bridge. He was found early in the morning in the river bed and died shortly afterwards. Inspection and inquiry made.
187	21st January, 9 A.M.	Pagaye mine, Tavoy P. O., Burma.	Rangoon Mining Co., Ld.	Neela, (*m.*), 30, *Contractor's coolie.*	Wolfram	While deceased was cutting down a tree, it fell on to him and killed him instantly.
188	27th January, 3 P.M.	Wagon North mine, Tavoy P. O., Burma.	Finlay Fleming & Co.	Chun See, (*m.*), 40, *Mining coolie.*	Wolfram	Deceased was breaking quartz at the head of a dump. He lost his balance and fell 30 feet down the dump, receiving injuries from which he died 5 hours later.
189	26th March, 4-30 P.M.	Khechaung mine, Tavoy P. O., Burma.	Quah Cheng Guan	Maung Aung-Sa, (*m.*), 28, *Labourer.*	Wolfram	Deceased was killed by a piece of rock which became detached by natural agencies from a precipitous hill-side on which the workings of the mine are situated.
190	12th April, 7-30 P.M.	Bhowra mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Srinath Kahar, (*m.*), 28, *Mine munshi.*	Coal	Deceased's clothes were accidentally ignited by the flame of an open oil lamp which he was carrying in his hand. He was severely burned and died three days later. Inspection and inquiry made.
191	17th April, 12-30 P.M.	Sudamdih mine, Bhojudih P. O., Bihar and Orissa.	Sudamdih Coal Co., Ld.	Ramjan Meah, (*m.*), 14, *Engine cleaner.*	Coal	Deceased was drowned in a fenced boiler tank. He was washing some clothes and it is presumed that he overbalanced and fell in. The tank is 50′ × 30′ × 10′ deep, and was completely fenced. Inspection and inquiry made.
192	11th April, 6 P.M.	Durgapur mine, Chanda P. O., Central Provinces.	Chanda Coal Prospecting Syndicate, Ld.	Rajeshar Kembi, (*m.*), 45, *Surveyor's coolie.*	Coal	Deceased was caught by a runaway wheel by which timber was being drawn out of a shaft. The impact threw him into the shaft and killed him.
193	11th May, 5 P.M.	Murulidih mine, Mohuda P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Sarup Chamar, (*m.*), 25, *Fitter.*	Coal	Deceased was found drowned in a boiler tank. There were no witnesses to the accident, but it is assumed that whilst soaking some boiler lagging composition he fell in and was drowned. The tank, which measured 32′ × 18′ × 9′ was properly fenced. Inspection and inquiry made.
194	14th May, 4 P.M.	Goria mine, Dharhara P. O., Bihar and Orissa.	Ambler Slate & Stone Co., Ld.	Biranchi Modi, (*m.*), 30, *Driller.*	Slate	Deceased was lowering out a block of stone from a hill-side. The block split suddenly, injuring him fatally.
195	3rd June, 4-30 P.M.	Namdang mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Khalley Mangar, (*m.*), 36, *Brakeswallah.*	Coal	Deceased was sitting on the brick pillar of a brake wheel. He fell down inside and was injured by the wheel. He died four days later.
196	5th June, 10 A.M.	New Tetturia mine, Katrasgarh P. O., Bihar and Orissa.	New Tetturia Coal Co., Ld.	Suraj Meah, (*m.*), 36, *Fitters' coolie.*	Coal	Deceased and five companions were turning the handles of a winch, which was being used to pull a Lancashire boiler along the surface. An unexpected jerk on the rope caused the handles to revolve backwards. Deceased was struck a blow, which resulted in his death in the following day. Inspection and inquiry made.
197	7th June, 12-30 P.M.	Kantapahari mine, Panuria P. O., Bengal.	Burrakar Coal Co., Ld.	Ludhe Gope, (*m.*), 27, *Hammerman.*	Coal	Deceased, for some unknown reason, climbed up a trestle supporting electric wires through which a current of 550 volts was passing. His right arm came into contact with the bare wire and he was electrocuted. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Cause of accident and remarks.
			MISCELLANEOUS ON SURFACE—*concld.*			
198	1st July, 2 P.M.	Angarpathra mine, Katrasgarh P. O., Bihar and Orissa.	Angarpathra Colliery Co.	Badhava Panjabi, (*m.*), 42, *Contractor for fitting machinery*; Mewa Bhat, (*m.*), 21, *Labourer.*	Coal	A contractor with four labourers were employed in placing a Lancashire boiler in position on its seating. The boiler rolled off the lifting jacks and crushed the contractor and one of the labourers. The former was killed instantly and the latter died a few minutes later. Inspection and inquiry made.
199	6th July, 1-30 P.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Che Chin, (*m.*), 35, *Sluicing tributor.*	Wolfram	Deceased, contrary to orders, placed a stop across a water race. When some upper gates were shut, an abnormal quantity of water passed through his gate, owing to the stop. This caused a stone to fall on him, causing such injuries that he died seven hours afterwards.
200	13th July, — A.M.	Kanbouk mine, Tavoy P. O., Burma.	Kanbouk (Burma) Wolfram Mines, Ld.	Kanta, (*m.*), 30, *Coolie.*	Wolfram	Deceased was killed by the fall of earth from the face of an hydraulic working.
201	27th July, 5-30 P. M.	Central Kurkend mine, Kusunda P. O., Bihar and Orissa.	Central Kurkend Coal Co., Ld.	Sukar Rai, (*m.*), 18, *Labourer.*	Coal	Deceased was one of a gang engaged in cleaning out a water softening tank, 8 feet deep. The tank is divided into 10 compartments, and whilst five of these were dry, the others contained water at a temperature of from 128° to 136°F. There are doors in each of the four corners of the oblong walling surrounding the tank. At the close of the day's work, deceased, instead of leaving by the nearest door, attempted to do so by the opposite door. In walking along the top of one of the partition walls, he slipped and fell into the tank. He was severely scalded and died four days later. Inspection and inquiry made.
202	27th July, 8-30 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Lee Tak Hun, (*m*)., 47, *Sluicing tributor.*	Wolfram	As deceased was engaged in sluicing during a heavy storm of rain, a heap of stones fell from the side and buried him. He was killed instantly.
203	22nd July, 10 P.M.	Heinda mine, Tavoy P. O., Burma.	Steel Brothers & Co., Ld.	Shu Shan, (*m.*), 29, *Tributor.*	Wolfram	Deceased, presumably, was walking on the trunk of a tree, which had fallen across a stream. He slipped and fell to the rocky bed below receiving injuries which resulted in his death.
204	14th August, 1 A.M.	Nwalabo mine, Tavoy P. O., Burma.	Tata Sons & Co., Ld.	Mahabir, (*m.*), 28, *Coolie.*	Wolfram	A tree fell on the coolie line, where deceased was sleeping at the time, and killed him.
205	15th August, 9-30 A.M.	Widnes mine, Tavoy P. O., Burma.	High Speed Steel Alloys Mining Co., Ld.	Po Myaing, (*m.*), 38, *Sawyer.*	Wolfram	Whilst deceased and two other men were sheltering in a sawpit during a very severe storm, a tree was blown down into the saw pit. Deceased was killed and the other two men were injured.
206	28th August, 4-57 P.M.	Rakha Hills mine, Rakha mines P. O., Bihar and Orissa.	Cape Copper Co., Ld.	Harnam Sing, (*m.*), 35, *Carpenter.*	Copper	While deceased was working on the roof of a building, about 24 feet high, he missed his footing and fell, head foremost, on an iron eyebeam, which was lying on the floor. He was killed instantly.

207	19th August, noon.	Widnes mine, Tavoy P. O., Burma.	High Speed Steel Alloy Mining Co., Ld.	Yea Fut, (*m.*), 20, *Tributor.*	Wolfram	Two trunks of trees which had been felled some months previously, were lying at an angle to each other, the end of one trunk resting on the other. Some coolies were clearing a water course passing under the end of the lower trunk, when the upper trunk slid along the lower trunk and fell on deceased and killed him.
208	5th October, 7-30 A.M.	Hermyingyi mine, Tavoy P. O., Burma.	Hermyingyi Mining Co., Ld.	Fakyr, (*m.*), 30, *Fuel-cutter.*	Wolfram	Deceased and another fuel-cutter, while endeavouring to work a large log down a hill-side, was crushed by the log. He succumbed to a fractured skull.
209	31st December, 11-30 A.M.	Sodepur (Nos. 9 and 10 Pits) mine, Sitarampur P. O., Bengal.	Bengal Coal Co., Ld.	Khetto Bagti, (*m.*), 45, *Sawyer.*	Coal	Deceased, whilst sawing wood, overbalanced and fell from a scaffold to the ground, a distance of 5½ feet. He sustained serious internal injuries and died shortly afterwards. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
		DEATHS NOT INCLUDED IN THE STATISTICS.—(*53 deaths.*)					
1	4th January, 6 A.M.	Burelia mine, Chora P. O., Bengal.	Burelia Coal Co., Ld.	Raghunandan Gope, (*m.*), 32, *Coal-Cutter.*	Coal	Not a mining accident.	Whilst deceased was cooking his food his clothes caught fire. He died from his injuries four days later.
2	12th January, 1 A.M.	Tikak mine, Margherita P. O., Assam.	Assam Railways and Trading Co., Ld.	Wazid (Pathan), (*m.*), 35, *Labourer.*	Coal	Not a mining accident.	While deceased was hand shunting a railway wagon at night, he was run into and killed by a second wagon which was being hand shunted behind him. Inspection and inquiry made.
3	21st January, midnight.	Loyabad mine, Bansjora P. O., Bihar and Orissa.	Burrakar Coal Co., Ld.	Behari, (*m.*), 35; Sekoo, (*m.*), 37, *Fitters.*	Coal	Not a mining accident.	Deceased were asphyxiated by a fire in their dhowra at night.
4	27th January, 9 P.M.	Sibpore mine, Charanpur P. O., Bengal.	Katras Jharia Coal Co., Ld.	Bhim Majhi, (*m.*), 11.	Coal	Not employed	Deceased's clothes caught fire from a tin lamp which he was carrying. He died from his injuries six days later.
5	28th January, 1 P.M.	Serampur mine, Giridih P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Chetni Ghatwarin, (*f.*), 28; Bhatni Ghatwarin, (*f.*), 11.	Coal	Not employed	The two deceased went into an old disused incline to rob coal. A mass of overhanging coal, weighing about two tons, fell from a height of six feet on to them, killing them instantly. Inspection and inquiry made.
6	13th February, 4 P.M.	Baraboni mine, Charanpur P. O., Bengal.	Baraboni Coal Concern, Ld.	Gopinath Pal, (*m.*), 75.	Coal	Not employed	Deceased was knocked down by a passing tub of coal whilst crossing a surface tram-line. He sustained serious injuries and died 56 hours later. Inspection and enquiry made.
7	16th February, 4 P.M.	Ranigunge mine, Ranigunge P. O., Bengal.	Bengal Coal Co., Ld.	Khenty Baurin, (*f.*), 22, *Loading coolie.*	Coal	Not a mining accident.	A loaded wagon was being hand shunted on a siding. Deceased, who was evidently underneath the wagon, pushing the front axle, slipped and fell. One of the front wheels passed over her right leg, fracturing it close to the thigh. She died 5 hours later after the limb had been amputated. Inspection and enquiry made.
8	16th February, 9-30 P.M.	Godhur mine, Kusunda P. O., Bihar and Orissa.	S. B. Raha and Son	Kitia Chamar, (*m.*), 3½.	Coal	Not employed	Deceased and another child were sleeping by the side of a pillar when a coal-carrier passing close to them stumbled and let fall a piece of coal, weighing about 30 seers. The coal struck deceased on the head, inflicting serious injuries, from which he died an hour later. Inspection and inquiry made.
9	10th March, 6-30 P.M.	Rajhara mine, Rajhara P. O., Bihar and Orissa.	Bengal Coal Co., Ld.	Mondi, (*f.*), 20.	Coal	Not employed	Deceased apparently threw herself into an air shaft, 96 feet deep. The shaft was properly fenced.

10	28th March, 1 P.M.	Kurkend (East) mine, Kusunda P. O., Bihar and Orissa.	Marine Coal Co., Ld.	Umdi Pasini, (*f.*), 35.	Coal	Not employed	Deceased was drowned in a boiler feed-water tank, 10 feet deep. Inspection and inquiry made.
11	17th April, noon.	Loyabad mine, Bansora P. O., Bihar and Orissa.	Burrakar Coal Co., Ld.	Bhujan Barhi, (*m.*), 30. Bisnwa Barhi, (*m.*), 21. *Carpenter's coolies.*	Coal	Not a mining accident.	The two deceased were drowned whilst bathing in an old water-logged quarry. Inspection and inquiry made.
12	16th April, 9-30 A.M.	Cradlebank mine, Pench P. O., Central Provinces.	Central Pench Coal Co., Ld.	Ramanand, (*m.*), 40, *Office clerk*; Munir Khan, (*m.*), 25; Sabadulla, (*m.*), 20, *Powder Contractor's employes.*	Coal	Not a mining accident.	The three deceased were killed by an explosion of gun-powder at the general colliery powder factory, owing either to a match or a cigarette being lit by one of them.
13	7th May, not known.	Bhowra mine, Jamadoba P. O., Bihar and Orissa.	Eastern Coal Co., Ld.	Makhna Bhuiya, (*m.*), 8.	Coal	Not employed	Deceased was found drowned in a colliery bathing tank. Inspection and inquiry made.
14	10th May, 9 A.M.	Jamuria mine, Nandi P. O., Bengal.	Equitable Coal Co., Ld.	Bisson Bauri, (*m.*), 8.	Coal	Not employed	Deceased, a child of weak intellect, was found crushed between the frame and wheel of the "tension bogie" of an endless haulage system. He sustained fractures of the right leg and left arm and other serious injuries, from which he died two hours later. The pully was unfenced. Inspection and inquiry made.
15	18th April, not known.	Kurhurbaree mine, Giridi P. O., Bihar and Orissa.	East Indian Railway Co., Ld.	Jitni Ghatwarin, (*f.*), 50.	Coal	Not employed	Deceased was found drowned at the bottom of an old shaft. Inspection and inquiry made.
16	17th May, 7-30 A.M.	Goria mine, Dharbara P. O., Bihar and Orissa.	Ambler Slate and Stone Co., Ld.	Kanna Kora, (*m.*), 25, *Coolie.*	Slate	Not a mining accident.	When going to his work in the mine deceased slipped down the face of a steep hill. He received injuries from which he died the same day.
17	19th May, 9 A.M.	Kolsiguma mine, Saonar P. O., Central Provinces.	Indian Manganese Co., Ld.	Shamrao, (*m.*), 9.	Manganese	Not employed	Deceased while bathing, placed his body across the bore of a delivery pipe just as the pump had been stopped. Owing to the foot valve leaking the water in the delivery pipe flowed back and owing to the position of deceased's body a partial vacuum was set up in the delivery pipe pressing the body hard against the pipe. This set up such severe internal injuries that he died shortly after being released.
18	16th May, 5-15 P.M.	Tikuri mine, Katni P. O., Central Provinces.	Katni Cement and Industrial Co., Ld.	Sundi, (*f.*), 8.	Bauxite	Not employed	Deceased was drowned while bathing in water at the bottom of an excavation.
19	30th April, noon.	Bulliari mine, Kusunda P. O., Bihar and Orissa.	Bulliari Coal Co., Ld.	Bulki Kamarin, (*f.*), 14; Mukhia Kaharin, (*f.*), 25.	Coal	Not employed	The two deceased were drowned while bathing in an old quarry. The quarry was fenced. Inspection and inquiry made.

Fatal Accidents, 1918—*contd.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
			DEATHS NOT INCLUDED IN THE STATISTICS—*contd.*				
20	6th May, 10 P.M.	Bhutgoria mine, Jharia P. O., Bihar and Orissa.	Aldih Coal Co., Ld.	Bepat Chamar, (*m.*), 35, *Depot coolie.*	Coal	Not a mining accident.	While a wagon was being hand-shunted in a colliery siding, on a dark night, it got out of control. Deceased was told to run ahead and put on the brakes of a stationary wagon. He was overtaken by the runaway wagon, knocked down by the buffers and killed on the spot. Inspection and inquiry made.
21	27th May, 5 A.M.	Bhutgoria mine, Jharia P. O., Bihar and Orissa.	Aldih Coal Co., Ld.	Peasi, (*f.*), 8.	Coal	Not employed.	Deceased was found drowned in a boiler tank. Inspection and inquiry made.
22	25th May, 0-30 A.M.	Balampore mine, Raniganj P. O., Bengal.	Balampore Coal Co., Ld.	Sabu Bauri, (*m.*), 10.	Coal	Not employed	Deceased, with another child, was sleeping on the side of the gallery in which his father was working, when a piece of shale, measuring 2′ 0″ × 1′ 0″ × 0′ 3″, fell from the roof, at a height of 3 feet, and struck him. He died 6½ hours later. Inspection and inquiry made.
23	25th May, 0-30 A.M.	Kantapahari mine, Panuria P. O., Bengal.	Burrakar Coal Co., Ld.	Sovan Shaik, (*m.*), 28, Kali Bauri, (*m.*), 30, Oyadali Shaik, (*m.*), 21, *Fitters*; Bihari Bauri, (*m.*), 33, Babulal Rajowar (*m.*), 18, *Coolies.*	Coal	Not a mining accident.	A railway tank, containing 4,000 gallons of kerosene, was being unloaded. The bulk of the oil had been pumped into a storage tank on the side of the line and the balance was being carried in "chatties" and "tins" to a smaller tank in the store-godown. One of the deceased persons appears to have opened a manhole in the top of the railway tank for the purpose of ascertaining the quantity of oil left in it. The oil in the tank, being in a gaseous state was ignited in some way (probably by a lamp) exploded and burst into flame. The four deceased died as a result of burns which they received. Inspection and inquiry made. (*See Report page 12*).
24	29th May, 4-30 P.M.	Budruchuck mine, Sijua P O., Bihar and Orissa.	Budruchuck Coal Mining Co., Ld.	Sukhai Gope, (*m.*), 25.	Coal	Not employed	Deceased was drowned in an old clay pit. Inspection and inquiry made.
25	5th June, 5 P.M.	Mandra mine, Katrasgarh P. O., Bihar and Orissa.	Bihar Aryan Coal Co.	Dukana Rajwar, (*m.*), 10, *Coolie.*	Coal	Not a mining accident.	The straw roof of a hut was blown off during a storm and fell on to deceased who was beside a domestic fire. He was burnt to death. Inspection and inquiry made.
26	21st June, 7-45 A.M.	Bansjora mine, Bansjora P. O., Bihar and Orissa.	Bansjora Coal Co., Ld.	Kodu Mondal, (*m.*), 30, *Sinking Contractor.*	Coal	Not a mining accident.	Deceased was standing on the edge of a platform, partly covering the mouth of a sinking well. He was helping to raise a rope to which were attached a couple of tins of water. Whilst so doing, the rope broke and caused him to overbalance, and fall down the well in which he was drowned. Inspection and inquiry made.

27	29th June, 10 P.M.	Sunkerpore mine, Ukhara P. O., Bengal.	Burn & Co., Ld.	Chandra Pal Singh, (*m.*), 45, *Shotfirer.*	Coal	Not a mining accident.	Deceased was severely burned by a fire which occurred in a row of miners' huts. He died 50 hours later from shock. Inspection and inquiry made.
28	10th July, 9 A.M.	South Kujama mine, Jharia P. O., Bihar and Orissa.	Bagdiggi Kujama Collieries, Ld.	Mohabir Ram, (*m.*), 5.	Coal	Not employed	Deceased fell into an unfenced reservoir, measuring 100' × 50' and was drowned. After the accident the reservoir was fenced. Inspection and inquiry made.
29	6th July, 11 P.M.	Begonis Khas mine, Barakar P. O., Bengal.	Maharaja M. C. Nandi.	Surabala Fauri, (*f.*), 29.	Coal	Not employed	The body of deceased was found in an old shaft containing water, and it was assumed that she had committed suicide. The shaft was fenced. Inspection and inquiry made.
30	15th July, 5-30 A.M.	Pretoria mine, Charanpur P. O., Bengal.	Sibpur Coal Co., Ld.	Pares Luram Marwari, (*m.*), 56.	Coal	Not employed	Deceased committed suicide by jumping down a pit. Inspection and inquiry made.
31	18th July, 11 A.M.	Goneshpur mine, Katrasgarh P. O., Bihar and Orissa.	Economic Coal Co., Ld.	Raghubir Dosadh, (*m.*), 10.	Coal	Not employed	Deceased climbed the wall of a boiler feed tank, slipped into the water and was drowned. The tank was walled all round. Inspection and inquiry made.
32	16th July, about 1-30 P.M.	Kutchidhana mine, Ramakona P. O., Central Provinces.	Indian Manganese Co., Ld.	Chandrahan, (*m.*), 10.	Manganese	Not employed	Deceased entered the water in an excavation, got beyond his depth and was drowned.
33	24th July, 1-30 P.M.	Kustore (North) mine, Kusunda P. O., Bihar and Orissa.	Raniganj Coal Association, Ld.	Dhansai Gara, (*m.*), 10.	Coal	Not employed	The deceased, unnoticed by any one, went through a fence and passed beneath the drum of a hauling engine. There was some slack rope, which, when the engine was started, caught him by the neck and carried him round the drum. His neck was broken. Inspection and inquiry made.
34	31st July, 8-20 A.M.	Bhajipani mine, Pench P. O., Central Provinces.	Pench River Coal Co., Ld.	Bhola Gond, (*m.*), 30, *Miner.*	Coal	Not a mining accident.	While hand shunting operations were in progress on a railway siding, deceased, who was standing between two wagons, was crushed between the buffers of the wagons and was killed instantly.
35	8th August, 6-20 P.M.	Shampore mine, Nirshachatti P. O., Bihar and Orissa.	Shampore Coal Co., Ld.	Mongla Manjhi, (*m.*), 10.	Coal	Not employed	Deceased and his companions were playing on some ground adjacent to a waterlogged airshaft. Whilst so doing, one of his playmates threw deceased's stick into the mouth of the shaft, where it lodged on a ledge. Deceased, in attempting to recover it, slipped and fell into the shaft. Inspection and inquiry made.
36	31st August, 9 A.M.	Lower Jharia mine, Jharia P. O., Bihar and Orissa.	G. K. Dossa and Sons	Mothura Hajjam, (*m.*), 20.	Coal	Not employed	Deceased attempted to jump on to a train of loaded coal tubs which was being drawn by a locomotive. He fell between the tubs and sustained injuries to which he succumbed on the following night. Inspection and inquiry made.
37	6th September, 6-45 P.M.	Bagdigi mine, Jharia P. O., Bihar and Orissa.	C. J. Smith	Sadhu Muchin, (*f.*), 55, *Miner's Kamin.*	Coal	Not a mining accident.	While deceased was crossing the railway line, at the colliery, she was knocked down by a passenger train sustaining injuries from which she died half an hour later.
38	9th September, 6 A.M.	Tetturia mine, Katrasgarh P. O., Bihar and Orissa.	D. N. Ghose and Bros.	Agnu Bhuiya, (*m.*), 45, *Loading-coolie.*	Coal	Not a mining accident.	Deceased was run over and killed whilst engaged in hand-shunting a wagon in the colliery siding. Inspection and inquiry made.
39	28th September, 9 A.M.	Burelia mine, Chora P. O., Bengal.	Burelia Coal Co., Ld.	Khoka Bawri, (*m.*), 4.	Coal	Not employed.	Deceased was playing near some empty wagons and released a brake, causing a wagon to move forward. The child stumbled and one of the wheels passed over him. He died the following day.

APPENDIX II—*contd.*

Fatal Accidents, 1918—*concld.*

Serial No.	Date and hour of accident.	Name and situation of mine.	Name of owner.	Name, sex, age and occupation of person killed.	Name of mineral wrought.	Reason for exclusion.	Cause of accident and remarks.
		DEATHS NOT INCLUDED IN THE STATISTICS—*concld.*					
40	5th November, 1 P.M.	Lodna mine, Jharia P. O., Bihar and Orissa.	Lodna Colliery Co., Ld.	Radhia Dhanukin, (*f.*), 40.	Coal	Not employed.	Deceased fell into an abandoned incline containing water and was drowned. Inspection and inquiry made.
41	6th November, not known.	Raniganj mine, Raniganj P. O., Bengal.	Bengal Coal Co., Ld.	Not known.	Coal	Not employed.	The deceased's body was found at the bottom of a shaft, 57 feet deep. It was presumed that her body had been thrown down the shaft. The fencing around the shaft was in order. Inspection and inquiry made.
42	Not known.	Joyramdanga mine, Asansol P. O., Bengal.	New Beerbhum Coal Co., Ld.	Lugi Mejhian, (*f.*), 20, *Coal-carrier.*	Coal	Not a mining accident.	Deceased was found drowned in a well. Inspection and inquiry made.
43	5th December, 1 P.M.	Ram mine, Charanpur P. O. Bengal.	Economic Coal Co., Ld.	Gosto Turi, (*m.*), 11.	Coal	Not employed.	Deceased jumped on to a passing train of colliery trucks, slipped and fell under the wheels. He was killed instantly. Inspection and inquiry made.

APPENDIX II—*contd.*

Table No. 2.

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1918.

Province.	District and mineral field.	Total average number of persons employed daily.	Fatal accidents.				Serious accidents.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths.			Number of serious non-fatal accidents.	Number of persons seriously injured.					
				Below ground.	Above ground.	Total deaths.		Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
						A.—COAL.							
Assam	Lakhimpur	2,617	12	11	2	13	78	69	12	81	6·25	2·33	4·97
	Naga Hills	370	...	...	...	...	...	...	...	...	...	...	...
	Sibsagar	68	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	3,055	12	11	2	13	78	69	12	81	5·62	1·82	4·26
Baluchistan	Kalat	78	...	...	...	...	...	...	...	...	...	...	...
	Loralai	20	...	...	...	...	...	...	...	...	...	...	...
	Quetta-Pishin	124	...	...	...	...	...	...	...	...	...	...	...
	Sibi-Khost	771	2	2	...	2	1	1	...	1	4·88	...	2·59
	TOTAL	993	2	2	...	2	1	1	...	1	3·57	...	2·01
Bengal	Bankura, Raniganj	124	...	...	...	...	...	...	...	...	...	...	...
	Birbhum „	139	...	...	...	...	...	...	...	...	...	...	...
	Burdwan „	45,886	53	65	6	71	43	39	8	47	2·24	·31	1·55
	TOTAL	46,149	53	65	6	71	33	39	8	47	2·23	·35	1·54
Bihar and Orissa	Hazaribagh: Bokaro-Ramgarh	7,224	1	1	...	1	11	2	9	11	·23	...	·14
	Hazaribagh: Giridih	9,357	5	5	...	5	14	9	5	14	·79	...	·53
	Hazaribagh: Jharia	1,427	1	1	...	1	...	...	...	...	1·27	...	·70
	Manbhum, Jharia	87,581	80	77	12	89	79	56	24	80	1·43	·36	1·02
	„ Raniganj	9,861	5	5	...	5	6	4	2	6	·85	...	·51
	Palamau, Daltonganj	848	...	...	...	...	2	2	...	2	...	...	...
	Sambalpur, Hingir-Rampur	741	...	...	...	...	...	...	...	...	...	...	...
	Sonthal Parganas, Jainty	1,388	2	3	...	3	3	3	...	3	4·34	...	2·16
	„ Raniganj	223	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	118,650	94	92	12	104	115	76	40	116	1·26	·26	·88
Central Provinces	Chanda, Ballarpur	1,801	3	2	1	3	8	5	3	8	1·98	1·28	1·67
	Chhindwara, Pench Valley	2,740	3	3	...	3	5	3	2	5	1·50	...	1·09
	Narsinghpur, Mohpani	1,508	1	1	...	1	1	...	1	1	1·08	...	·66
	Yeotmal	3	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	6,052	7	6	1	7	14	8	6	14	1·52	·47	1·16
North-West Frontier Province.	Hazara	12	...	...	...	...	...	...	...	...	...	...	...
Panjab	Jhelum	1,161	...	...	...	...	4	3	1	4	...	...	...
	Mianwali	49	...	...	...	...	...	...	...	...	...	...	...
	Shahpur	128	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	1,338	...	...	...	...	4	3	1	4	...	...	...
	GRAND TOTAL (COAL)	176,269	168	176	21	197	255	196	67	263	1·60	·31	1·12

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1918—*contd.*

Provinces.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
			B.—MICA.										
Bihar and Orissa	Bhagalpur	8	...	...	...	...	...	...	...	...	...	...	...
	Gaya	2,327	1	1	...	1	1	2	...	2	·59	...	·43
	Hazaribagh	15,429	1	1	...	1	3	2	1	3	·10	...	·06
	Monghyr	3,432	...	...	...	...	...	...	...	...	...	...	...
	Sambalpur	146	...	...	...	...	...	...	...	...	..	..	...
	Manbhum	22	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	21,364	2	2	...	2	4	4	1	5	·14	...	·09
Madras	Nellore	3,550	...	...	...	...	...	...	...	...	...	...	...
	Salem	213	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	3,763	...	...	...	...	...	...	...	...	...	...	...
Rajputana	Ajmer-Merwara	445	1	...	1	1	1	1	...	1	...	6·49	2·25
	Nasirabad	20	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	465	1	...	1	1	1	1	...	1	...	6·25	2·15
	GRAND TOTAL (MICA)	25,592	3	2	1	3	5	5	1	6	·12	·11	·12
			C.—MANGANESE.										
Bombay	Panch Mahals	1,022	1	2	...	2	2	1	1	2	2·56	...	1·96
Central Provinces	Balaghat	5,801	2	2	...	2	1	...	1	1	·42	...	·34
	Bhandara	553	1	1	...	1	1	1	...	1	2·34	...	1·81
	Chhindwara	2,114	2	1	1	2	1	...	1	1	·56	2·92	·95
	Nagpur	4,036	1	1	...	1	...	...	...	...	·34	...	·25
	TOTAL	12,504	6	5	1	6	3	1	2	3	·51	·38	·48
Madras	Vizagapatam	317	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (MANGANESE)	13,843	7	7	1	8	5	2	3	5	·64	·34	·58
			D.—LIMESTONE.										
Central Provinces	Jabalpur-Katni	1,886	...	...	...	...	1	1	...	1	...	...	...
	Bilaspur	104	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	1,990	...	...	...	...	1	1	...	1	...	...	...
Panjab	Hoshiarpur	60	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (LIMESTONE)	2,050	...	...	...	...	1	1	...	1	...	...	...

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1918—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				DEATH-RATE PER 1,000 PERSONS EMPLOYED.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of persons injured.	Below ground.	Above ground.	Below and above ground.
		E.—SALT.											
Panjab	Jhelum	811	1	1	1	1	5	3	2	5	...	14·08	1·23
	Mianwali	88	1	...	...	1	...	...	...	...	11·36	...	11·36
	Shahpur	81	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (SALT)	980	2	1	1	2	5	3	2	5	1·10	14·08	2·04
		F.—GEMS.											
Burma	Mogok (Rubies, etc.)	1,300	...	...	...	...	3	1	2	3	...	...	...
		G.—SLATE.											
Bihar and Orissa	Monghyr	215	1	...	1	1	2	2	1	3	...	34·48	4·65
Panjab	Gurdaspur	5	...	...	...	...	...	...	...	...	...	...	...
	Gurgaon	195	...	...	...	...	...	...	...	...	...	...	...
	Kangra	275	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	475	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (SLATE)	690	1	...	1	1	2	2	1	3	...	5·21	1·45
		H.—GOLD.											
Bihar and Orissa	Singhbhum	183	...	...	...	...	...	...	...	...	...	...	...
Madras	Anantapur	1,004	2	2	...	2	7	8	1	9	4·10	...	1·99
	GRAND TOTAL (GOLD)	1,187	2	2	...	2	7	8	1	9	3·70	...	1·68
		I.—IRON ORE.											
Bihar and Orissa	Singhbhum	1,087	...	...	...	...	...	...	...	...	...	...	...
Central Provinces	Jabalpur	130	...	...	...	...	...	...	...	...	...	...	...
Rajputana	Ajmer-Merwara	22	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (IRON ORE)	1,239	...	...	...	...	...	...	...	...	...	...	...
		J.—WOLFRAM.											
Bihar and Orissa	Singhbhum	96	1	1	...	1	...	...	...	...	25·00	...	10·42
Burma	Mergui	402	2	3	...	3	...	...	...	...	35·71	...	7·46
	Tavoy	8,884	21	12	11	23	19	10	10	20	2·46	2·74	2·59
	Thaton	996	...	...	...	...	...	...	...	...	...	...	...
	TOTAL	10,282	23	15	11	26	19	10	10	20	2·72	2·31	2·53
	GRAND TOTAL (WOLFRAM).	10,378	24	16	11	27	19	10	10	20	2·88	2·28	2·60

APPENDIX II—*contd.*

Table No. 2—*contd.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1918—*contd.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				Death-rate per 1,000 persons employed.		
			Number of separate fatal accidents.	Number of deaths. Below ground.	Above ground.	Total deaths.	Number of serious non-fatal accidents.	Number of persons seriously injured. Below ground.	Above ground.	Total number of injured.	Below ground.	Above ground.	Below and above ground.
		K.—MAGNESITE.											
Madras	Salem	353	...	...	...	...	1	...	1	1	...	...	...
		L.—CHROMITE.											
Baluchistan	Quetta Pishin	2	...	...	...	...	...	...	...	...	...	...	...
	Zhob	164	...	...	...	...	1	1	...	1	...	...	...
	TOTAL	166	...	...	...	...	1	1	...	1	...	...	...
Bihar and Orissa	Singhbhum	247	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (CHROMITE)	413	...	...	...	...	1	1	...	1	...	...	...
		M.—COPPER ORE.											
Bihar and Orissa	Singhbhum	1,314	1	...	1	1	3	...	3	3	...	·89	·76
Burma	Lower Chindwin	30	...	...	...	...	...	...	...	...	...	...	...
Central Provinces	Balaghat	12	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (COPPER)	1,356	1	...	1	1	3	...	3	3	...	·87	·74
		N.—BAUXITE.											
Central Provinces	Jabalpur	120	...	...	...	...	...	...	...	...	...	...	...
		O.—CLAY.											
Bihar and Orissa	Manbhum	547	...	...	...	...	1	...	1	1	...	...	...
	Palamau	181	...	...	...	...	1	1	...	1	...	...	...
	TOTAL	728	...	...	...	...	2	1	1	2	...	...	...
Central Provinces	Jabalpur	328	...	...	...	...	...	...	...	...	...	...	...
Delhi	Delhi	23	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (CLAY)	1,079	...	...	...	...	2	1	1	2	...	...	...
		P.—GALENA.											
Central Provinces	Drug	26	...	...	...	...	...	...	...	...	...	...	...
		Q.—TIN.											
Burma	Mergui (Maliwan)	56	...	...	...	...	...	...	...	...	...	...	...
	Tavoy	67	1	2	...	2	...	...	...	...	250·0	...	29·85
	Thaton	300	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (TIN)	423	1	2	...	2	...	...	...	...	10·10	...	4·73

APPENDIX II—*contd.*

Table No. 2—*concld.*

Statement of fatal and serious accidents in and about mines regulated by the Indian Mines Act, 1901, during the year 1918—*concld.*

Province.	District and mineral field.	Total average number of persons employed daily.	FATAL ACCIDENTS.				SERIOUS ACCIDENTS.				DEATH-RATE PER 1,000 PERSONS EMPLOYED.		
			Number of separate fatal accidents.	Number of deaths.			Number of serious non-fatal accidents.	Number of persons seriously injured.					
				Below ground.	Above ground.	Total death.		Below ground.	Above ground.	Total number of injured.	Below ground.	Above ground.	Below and above ground.
		R.—STEATITE.											
Central Provinces . .	Jabalpur	178	...	...	...	...	..	...	...	...	...	...	...
Madras	Kurnool	9	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (STEATITE) .	187	...	...	...	...	...	...	...	...	...	...	...
		S.—OCHRE.											
Bihar and Orissa . .	Puri	29	...	...	...	...	...	...	...	...	...	...	...
		T.—GRAPHITE.											
Rajputana . . .	Ajmer-Merwara . . .	18	...	...	...	...	...	...	...	...	...	...	...
		U.—APATITE.											
Bihar and Orissa . .	Singhbhum	150	...	...	...	...	...	...	...	...	...	...	...
		V.—BARYTES.											
Madras	Kurnool	41	...	...	...	...	...	...	...	...	...	...	...
		W.—MOLYBDENITE.											
Burma	Tavoy	15	...	...	...	...	...	...	...	...	...	...	...
	GRAND TOTAL (ALL MINES)	267,738	269	206	37	243	309	280	92	232	1·37	·42	1·02

APPENDIX II—*contd.*

Table No. 3.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1918, classified according to the age and sex of the workers.

Mineral.	Province and mineral field.	Number of separate fatal accidents.	Number of deaths.								Total below and above ground.
			Below ground.				Above ground.				
			Adult males.	Adult females.	Children (under 12).	Total.	Adult males.	Adult females.	Children (under 12).	Total.	
Coal	Assam, Lakhimpur	12	11	...	...	11	1	1	...	2	13
	Baluchistan, Sibi, Khost	2	2	...	...	2	...	...	...	...	2
	Bengal, Raniganj	53	56	9	...	65	5	1	...	6	71
	Bihar and Orissa. — Bokaro, Ramgarh	1	...	1	...	1	...	...	...	...	1
	Bihar and Orissa. — Giridih	5	5	...	...	5	...	...	...	...	5
	Bihar and Orissa. — Jharia, Hazaribagh	1	...	...	1	1	...	...	...	...	1
	Bihar and Orissa. — Jharia, Manbhum	80	60	15	2	77	11	1	...	12	89
	Bihar and Orissa. — Manbhum, Raniganj	5	5	...	...	5	...	...	...	...	5
	Bihar and Orissa. — Sonthal Parganas, Jainty	2	3	...	...	3	...	...	...	...	3
	Total Bihar and Orissa	94	73	16	3	92	11	1	...	12	104
	Central Provinces — Chanda	3	2	...	...	2	1	...	...	1	3
	Central Provinces — Chhindwara	3	3	...	...	3	...	...	...	...	3
	Central Provinces — Narsinghpur	1	...	1	...	1	...	...	...	...	1
	Total Central Provinces	7	5	1	...	6	1	...	...	1	7
	Total Coal	168	147	26	3	176	18	3	...	21	197

APPENDIX II—*contd.*

Table No. 3—*concld.*

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1918, classified according to the age and sex of the workers—*concld.*

Mineral.	Province and mineral field.	Number of separate fatal accidents.	Number of deaths.								Total below and above ground
			Below ground.				Above ground.				
			Adult males.	Adult females.	Children (under 12).	Total.	Adult males.	Adult females.	Children (under 12).	Total.	
Copper	Bihar and Orissa, Singhbhum	1	...	...	...	...	1	...	...	...	1
Gold	Madras, Anantapur	2	2	...	...	2	...	...	...	...	2
Manganese	Bombay, Panchmahals	1	2	...	...	2	...	...	...	...	2
	Central Provinces, Balaghat	2	1	1	...	2	...	...	...	...	2
	Central Provinces, Bhandara	1	1	...	...	1	...	...	...	...	1
	Central Provinces, Chhindwara	2	1	...	...	1	1	...	...	1	2
	Central Provinces, Nagpur	1	1	...	...	1	...	...	...	...	1
	Total Central Provinces	6	4	1	...	5	1	...	...	1	6
	Total Manganese	7	6	1	...	7	1	...	...	1	8
Mica	Bihar and Orissa, Gaya	1	1	...	...	1	...	...	...	...	1
	Bihar and Orissa, Hazaribagh	1	1	...	...	1	...	...	...	...	1
	Total Bihar and Orissa	2	2	...	...	2	...	...	...	...	2
	Rajputana, Ajmer-Merwara	1	...	...	...	...	1	...	...	1	1
	Total Mica	3	2	...	...	2	1	...	...	1	3
Salt	Panjab, Jhelum	1	...	...	...	...	1	...	...	1	1
	Panjab, Mianwali	1	1	...	...	1	...	...	...	...	1
	Total Salt	2	1	...	...	1	1	...	...	1	2
Slate	Bihar and Orissa, Monghyr	1	...	...	...	...	1	...	...	1	1
Tin	Burma, Tavoy	1	2	...	...	2	...	...	...	...	2
Wolfram	Bihar and Orissa, Singhbhum	1	1	...	...	1	...	...	...	...	1
	Burma, Mergui	2	3	...	...	3	...	...	...	...	3
	Burma, Tavoy	21	12	...	...	12	11	...	...	11	23
	Total Burma	23	15	...	...	15	11	...	...	11	26
	Total Wolfram	24	16	...	...	16	11	...	...	11	276
Grand total (all minerals)		209	176	27	3	206	34	3	...	37	243

APPENDIX II—*concld.*

Table No. 4.

Statement of fatal accidents in mines regulated by the Indian Mines Act, 1901, during the year 1918, classified according to cause of accident.

Mineral worked.	Number of separate fatal accidents.	Number of persons killed.											Death-rate per 1,000 persons employed.		
		Explosions of fire-damp.	Falls of roof.	Falls of side.	In shafts.	Suffocation by gases.	By explosives.	Irruptions of water or falling into water.	Haulage.	Miscellaneous below ground.	Surface.	Total deaths.	Below ground.	Above ground.	Below and above ground.
Coal	168	12	67	38	19	...	7*	3	22	13	16	197	1·60	·31	1·12
Copper	1	...	...	...	...	...	...	...	...	...	1	1	...	·87	·74
Gold	2	...	...	...	2	...	...	...	...	...	...	2	3·70	...	1·68
Manganese	7	...	...	3	...	...	...	3	...	1	1	8	·64	·34	·58
Mica	3	...	...	1	...	...	2	...	...	...	...	3	·12	·11	·12
Salt	2	...	1	...	...	...	...	...	...	...	1	2	1·10	14·08	2·04
Slate	1	...	...	...	...	...	...	...	...	...	1	1	...	5·21	1·45
Tin	1	...	...	2	...	...	...	...	...	...	...	2	10·10	...	4·73
Wolfram	24	...	2	12	...	...	...	...	...	2	11	27	2·88	2·28	2·60
Total 1918	209	12	70	56	21	...	9*	6	22	16	31	243	1·37	·42	1·02
Total preceding year.	175	1	61	50	16	3	9	4	20	15	22	201	1·30	·36	·95
Difference	+34	+11	+9	+6	+5	−3	...	+2	+2	+1	+9	+42	+·07	+·06	+·07

* Include three surface accidents.

APPENDIX III.

PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901.

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1918.

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bihar and Orissa	Manbhum	1	1	1	Section 20, Rule 1 of Notification No. 5072—113, dated 1st July 1916.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	...	Ditto ditto ...	Withdrawn. Accused not traceable.
	Do.	1	1	...	Ditto ditto ...	Acquitted.
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Section 20, Rules 1 and 11 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 3 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	4	4	Ditto ditto.	
	Do.	1	2	1	Section 20, Rule 7 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	3	3	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	1	1	Ditto ditto.	
	Do.	1	3	1	Ditto ditto.	
	Do.	1	1	1	Section 21, Rule 4 of Special Rules.	
	Do.	1	1	...	Section 21, Rule 100 of Special Rules	Withdrawn. Accused not traceable.
	Do.	1	1	...	Section 21, Rule 4 of Special Rules.	
	Do.	1	1	...	Ditto ditto.	

APPENDIX III—*concld.*

PROSECUTIONS UNDER THE INDIAN MINES ACT, 1901—*concld.*

Statement of prosecutions instituted under the Indian Mines Act, 1901, during the year 1918—*concld.*

Province.	District.	Number of prosecutions.	Number of persons prosecuted.	Number convicted.	Numbers of rules and sections of the Act contravened.	Remarks.
Bengal	Burdwan	1	1	1	Section 20, Rule 7 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 12 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	2	2	Section 20, Rule 19 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 20, Rule 20 of Notification No. 864-68—20, dated 10th March 1904.	
	Do.	1	1	1	Section 21, Rules 5, 7, 15 and 21 of the Special Rules.	
	Do.	1	1	...	Section 21, Rule 4 of the Special Rules.	Withdrawn. Accused not traceable.
	Do.	1	1	...	Section 21, Rule 5 of the Special Rules.	
Burma	Tavoy	1	1	1	Section 20, Rule 14 of the Mines Act Rules Burma (1917).	
	Do.	1	1	1	Ditto ditto.	

APPENDIX IV.

MISCELLANEOUS.

Statement No. 1.

List of Inspection Circles.

No. 1 Circle.	No. 2 Circle.
1. All mines in Bihar and Orissa except mines in the district of the Santhal Parganas and such mines in the district of Manbhum as lie east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the district.	1. All mines in Bengal.
2. All mines in Baluchistan.	2. Such mines in Bihar and Orissa as lie in the district of the Santhal Parganas and in the district of Manbhum east of a line drawn from mile 175 on the Bengal Nagpur Railway to mile 169 on the Grand Trunk Road and continued in a straight line across the district.
3. All mines in the North-West Frontier Province.	3. All mines in Bombay.
4. All mines in the Panjab.	4. All mines in the Central Provinces.
5. All mines in Rajputana.	5. All mines in Madras.
6. All mines in Assam.	6. All mines in Burma, other than those in the Tavoy District.

No. 3. Circle. All mines in the district of Tavoy, Lower Burma.

Statement No. 2.

List of holders of certificates as managers of coal mines in British India.

(*a*) Certificates granted to holders of English Certificates of competency.

FIRST CLASS.

NAME.	No. of Indian certificate.	Date of Indian certificate.	No. of English certificate.	Date of English certificate.
Habberjam, Charles . . .	211	8th August 1918 .	170	26th January 1915.

(*b*) Certificates of competency.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Edwards, David Lewis	101	16th April 1918.	
Roy, Moni Bhusan	102	Ditto.	
O'Reilly, Denis Edward	103	Ditto.	
Bhattacharji, Jnanendra Nath . . .	104	Ditto.	
Lyon, Horace Albert	105	Ditto.	
Judge, Peter	106	Ditto.	
Thomson, Joseph	107	Ditto.	
McGrath, Albert Edward . . .	108	Ditto.	
Bagchi, Beni Madhab Nath . . .	109	Ditto.	
Mitter, Atul Sasi	110	Ditto.	

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 2—*contd.*

List of holders of certificates as managers of coal mines in British India—*contd.*

(*b*) Certificates of competency—*concld.*

SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Hogg, James Sneddon	144	16th April 1918	1st Class candidates recommended for 2nd class certificates.
Ganguli, Bejoy Kumar	145	Ditto	
DeMenezes, Vincent	146	Ditto.	
Fitzgerald, James	147	Ditto.	
Chatterjee, Rakhal Chandra	148	Ditto.	
Bose, Bhupendra Kumar	149	Ditto.	
Bhattacharji, Indu Kiron	150	Ditto.	
Dave, Harishankar Hirji	151	Ditto.	
Mukherji, Santosh Kumar	152	Ditto.	
DeSouza, Frank	153	Ditto.	
Mukherji, Bhupendra Kumar	154	Ditto.	
Paramanik, Jatindra Nath	155	Ditto.	
Ghosh, Balai Charan	156	Ditto.	
Guha, Manickia Chandra	157	Ditto.	
Banerji, Lakshmipati	158	Ditto.	
Bhattacharji, Dhirendra Nath	159	Ditto.	
Chatterji, Jitendra Nath	160	Ditto.	
Jackson, Clarence Oliver	161	Ditto.	
Chatterji, Debi Das	162	Ditto.	
Rydquist, Frederick William	163	Ditto.	
Deb, Srischandra	164	Ditto.	
Baksi, Kali Krishna	165	Ditto.	
Sanyanto, Narendra Nath	166	Ditto.	
Bose, Sachindra Nath	167	Ditto.	

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 2—*concld.*

List of holders of certificates as managers of coal mines in British India—*concld.*

(*c*) Certificates of service.

FIRST CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Portcous, William Bain	142	18th February 1918.	
Ghose, Jasoda Dulal	143	Ditto.	
Bennett, William Henry	144	23rd April 1918.	
Simpson, Stanly Nevil	145	Ditto.	
Mackenzie, John	146	9th August 1918.	
Pearson, Charles	147	Ditto.	
Ross, Ralph	148	Ditto.	
Thompson, George	149	Ditto.	
Banerji, Koolada Prosad	150	22nd August 1918.	

(*d*) Certificates of service.

SECOND CLASS.

NAME.	No. of certificate.	Date of certificate.	REMARKS.
Mukherji, Ram Chandra	192	19th February 1918.	
Whiffen, Percy Neville	193	Ditto.	
Boswell, Wilfred Moore	194	Ditto.	
Hyde, Joseph	195	16th April 1918.	
Hazra Chowdhury, Kali Krishna	196	Ditto.	
Guha, Jogesh Chandra	197	22nd April 1918.	
Dutta, Sudhamoy	198	Ditto.	

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 3.

List of Universities and Colleges approved by the Governor-General in Council for the purposes of Rules 32 and 33 under the Indian Mines Act, 1901.

Name of Institution and Degree or Diploma.	Date.
University of Birmingham in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	11th June 1904.
University College of Bristol in respect of its Senior Diploma in Mining.	16th September 1904.
University of Cambridge in respect of its Diploma in Mining Engineering.	6th June 1905.
University of Durham in respect of its Degree of B.Sc. in Mining.	21st December 1903.
Durham College of Science in respect of its Diploma in Mining.	29th June 1904.
University of Glasgow in respect of its Degree and Diploma in Mining.	28th September 1904.
Glasgow and West of Scotland Technical College in respect of its Diploma in Mining.	28th June 1904.
University of Leeds in respect of its Degree of B.Sc. in Mining and Diploma in Mining.	21st November 1904.
University of London in respect of its B.Sc. Degree in Mining for Internal Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	9th June 1905.
University of London in respect of its B.Sc. Degree in Mining for External Students, subject to the Degree being endorsed by the University with a certificate of four months' practical experience in a mine.	7th August 1906.
Royal School of Mines in respect of its Associateship in Mining.	24th March 1904.
University of Oxford in respect of its Diploma B. for Colliery Engineers (in Scientific Engineering and Mining subjects).	11th February 1905.
University College of Sheffield in respect of its Diploma in Mining.	15th July 1904.
University College of South Wales and Monmouthshire in respect of its Diploma in Mining.	19th April 1904.
Wigan Mining and Technical College in respect of its Diploma in Mining.	26th August 1904.
Civil Engineering College, Sibpur, in respect of its Diploma in Mining.	22nd February 1907.
Merchant Venturers' Technical College, Bristol, in respect of its Diploma in Mining Engineering.	5th October 1905.
Victoria University of Manchester in respect of its Degree and Certificate of Mining.	14th February 1906.
University College of Nottingham in respect of its Diploma in Mining Engineering.	28th March 1906.
University of Sheffield in respect of its Degree of Bachelor of Engineering (Mining).	30th June 1906.
Heriot-Watt College in respect of its Certificate in Mining Engineering.	16th January 1908.
Calcutta University in respect of its Degree of Bachelor of Engineering in the Branch of Mining Engineering.	24th September 1910.
Harvard University, Cambridge, Massachusetts, in respect of its Diploma in Mining Engineering.	22nd February 1913.
Columbia University, New York, in respect of its Degree of Engineer of Mines.	13th March 1915.
California University, United States of America, in respect of its Degree of Mining Engineer.	19th February 1916.
Pittsburg University, United States of America, in respect of its Degree of Engineer of Mines.	19th February 1916.
Leland Stanford Junior University, California, in respect of its Degree of Bachelor of Arts in Geology and Mining.	10th August 1918.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 4.

SIBPUR COLLEGE.

THE MINING CLASSES.

Admissions to the Diploma Course in Mining at the Civil Engineering College, Sibpur.

The Diploma Course covers two sessions, commencing yearly in April, and lasting till the examinations in the following March. (There is a vacation of about three months in August, September and October.) Six weeks of each session is spent at a camp of mine surveying in the colliery districts.

Two classes of students are admitted—

Regular—who need have no experience of Mining.

Special—who have had about two years' previous experience of coal-mining (underground).

Admissions are made as follows :—

Regular students—

A.—Through a special preparatory course of one year's duration at the Civil Engineering College. Admissions at end of January.

B.—Through the Sub-Overseer classes (a two years' course) at Sibpur, Dacca, Burdwan and Pubna, in Bengal; Bankipur and Ranchi in Bihar and Orissa. Admissions to Sub-Overseer class at the Civil Engineering College are made at the beginning of November.

Special students—

C.—Direct from the mines to the Mining classes without passing through either A or B. Admissions at the beginning of April.

Admission qualifications to A, B and C—

The passing of the Matriculation Examination, the Junior Cambridge Examination, the examination held at the end of the supplementary course for elementary European schools, or equivalent.

Scholarships—

For regular students—

Scholarships of the following number and value are available for Regular students admitted under A, these are awarded on the result of the examination held at the end of the preparatory course A :—

Two of Rs. 12 monthly;

Three „ 6 „

For special students—

Awarded on the result of the examination held at the end of the lectures given in the colliery districts by the Instructor in Mining—

One of Rs. 50 for Europeans.

One or two of Rs. 25 for Indians.

These amounts should be sufficient to maintain a special student resident at the college.

For further particulars apply for the Apprentice Department Circular.

B. HEATON,

Principal, Civil Engineering College, Sibpur.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5.

MINING INSTRUCTION IN BENGAL AND BIHAR AND ORISSA.

[*The Mining Education Advisory Board desire that Colliery Managers will kindly publish this information in their collieries. An appeal is also made to them to support the lectures by seeing that members of their colliery staff, who are suitable, take advantage of the lectures and attend them regularly.*]

The full course comprises two parts, the lectures in which are delivered in alternate years as follows:—

The principles of Coal Mining 1919-20, 1921-22, etc.

The principles of Mechanical Engineering of Coal Mines 1918-19, 1920-21, etc.

A fee of Rs. 5 (five rupees) payable to the Mining Instructor on the first registration of his name is charged to each student for each year's series of lectures. This fee is non-returnable.

Programme for Session 1918-19.

LECTURES on the Principles of Mechanical Engineering of Coal Mines will be delivered in English by Mr. H. C. Read, Mining Instructor, as follows:—

JHARIA COAL-FIELD.

Jharia	... Lecture-room near Club	... Mondays	... 5-30 P.M.
Sijua	... Lecture-room near Station	... Tuesdays	... 5-0 „

RANIGANJ COAL-FIELD.

Deshergarh	... Lecture-room near club	... Wednesdays	... 5-30 P.M.
Raniganj	... Railway Institute	... Thursdays	... 5-0 „
Jamuria	... Chief Mining Engineer's office, Sibpur Colliery	... Fridays	... 5-30 „

The course of instruction, consisting of not less than 30 lectures, will commence the first week in September and end in the following April. The examination will be held early in May. Candidates who pass the examination will receive a certificate recording their success. No candidate will, however, be permitted to sit for the examination unless he has attended 50 per cent. of the lectures and received 40 per cent. of the marks allotted for home work.

Rupees 100 monthly is offered in scholarships awarded by the Mining Education Advisory Board on the results of the examination, these will be tenable for two years at the Sibpur College and are granted to enable the holders to attend the full course for the Diploma in the Principles of Mining. One scholarship of Rs. 50 is reserved for Europeans and two of Rs. 25 are awarded to Indians.

The following Sub-Committees have been appointed:—

RANIGANJ COAL-FIELD.

Deshergarh Centre.	*Jamuria Centre.*	*Ranigunj Centre.*
Mr. H. Lancaster, *Chairman.*	Mr. H. Lancaster, *Chairman.*	Mr. H. Lancaster, *Chairman.*
„ Glen George (Deshergarh).	„ P. S. Keelan (Charanpur).	„ P. S. Keelan (Charanpur).
„ Geo. Miller (Sitarampur).	„ T. Samson (Charanpur).	„ A. T. Creet (Kalipahari).
„ F. Owen (Deshergarh).	„ R. Mitchell (Nandi).	„ W. J. Rees (Raniganj).
Babu M. N. Roy (Begunia).	„ W. S. Elphinstone (Asansol)	Babu Promotha Nath Hazra (Toposi).
„ P. C. Tarafdar (Mugma).	Babu Atul Shashi Mitra (Asansol).	„ Kali Kumar Misra (Searsole Raj Estate).
„ S. N. Ghosh (Barakar).		„ S. Chaudhuri (Jamehari, Ranigunj).

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5—*contd.*

JHARIA COAL-FIELD.

Jharia Centre.	*Sijua Centre.*
Mr. R. R. Simpson, *Chairman.*	Mr. R. R. Simpson, *Chairman.*
,, R. G. M. Bathgate (Jamadoba).	,, A. A. Agabeg (Sijua).
,, Kirk (Kustore).	,, R. Heron (Ekra Bansjora).
,, E. D. James (Lodna).	,, Starksfield (Bansjora).
,, R. Barrowman (Standard Coal Company, Jharia).	,, G. C. Leach (Sijua P. O.).
Babu Gobhurdhan Das Manishankar (Jharia).	Babu Trikumdas Doyal (Bansjora).
,, Narendra Nath Sarkar (South Kujama, Jharia).	,, Basanta Kumar Roy (Kirkend).

Copies of the syllabus may be obtained from the Mining Instructor, Muslia, Asansol, or from

B. HEATON,

Secretary, Mining Education Advisory Board,
C. E. College, Sibpur Botanic Garden, P. O. Howrah.

MINING INSTRUCTION IN THE COAL-FIELDS OF BENGAL AND BIHAR AND ORISSA.

Syllabus of the Course of Instruction.

The lectures in the following courses are delivered in alternate years:—

THE PRINCIPLES OF COAL MINING.

1. *Geology.*—General structure of the earth's crust; igneous and aqueous rocks; definitions of outcrop, dip, strike, fault, roll, wash-out and dyke, etc.; recording geological observations, reading a geological map; description of the Indian coal bearing rocks; composition and properties of coal. Commercial values of coal.

2. *Exploration.*—Prospecting, trial shafts and trenching; advantages of boring; methods of boring; driving through faults, uses of boreholes in mines, etc.

3. *Breaking ground.*—Common tools; storage and use of explosives; electric fuses; machine drills; coal-cutting machines.

4. *Sinking.*—Site of colliery; position of inclines and shafts, their excavation and shape, apparatus used in sinking; lining shafts; arrangements at top of sinking shaft; brief mention of special methods of sinking.

5. *Methods of working.*—Quarrying, advantages of bench work, disposal of soil; shaft pillars; pillar and gallery method, working thick seams in stages, extraction of pillars, panels; brief description of longwall and chambering methods.

6. *Supporting.*—Props and lids, bars, chocks or cogs, square sets, special timbering in loose ground; arching; steel girders; packing; dry and hydraulic stowing.

7. *Mine gases.*—Their experimental preparation by chemicals, and illustration of their physical and physiological properties; their chemical composition; methods of detecting explosions; spontaneous combustion of coal; dangers of coal dust.

8. *Ventilation.*—Ascensional currents, currents induced by the heat of steam or furnace; mine fans; friction of air in mines; theory of splitting the air; calculations of ventilating pressure, etc.; coursing the air; measurement of quantity of air; use of anemometer, water-gauge, thermometer and barometer; reversing the air current.

9. *Safety lamps.*—Principle of the safety-lamp; Sir Humphrey Davy's experiment; types of safety lamps; firedamp detectors.

THE PRINCIPLES OF MECHANICAL ENGINEERING OF COAL MINES.

1. *Applied Mechanics.*—Mensuration; definitions of force, motion, friction, work and energy; the simple machines; mechanical and electrical units; hydrostatics; the siphon pressure of gases; Boyles' law.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 5—*concld.*

MINING INSTRUCTION IN THE COAL-FIELDS OF BENGAL AND BIHAR AND ORISSA.

Syllabus of the Course of Instruction—contd.

THE PRINCIPLES OF MECHANICAL ENGINEERING OF COAL MINES—*contd.*

2. *Steam Electricity and Compressed air.*—Theory of steam boilers and their fittings; the steam engine; the dynamo; the electric motor; the air compressor.

3. *Winding.*—Types of winding engines and description of parts; calculation of the dimensions of winding engines; strength of ropes and chains; detaching hooks; overwinding prevention devices; rope cappings; care and examination of ropes, buckets, cages, guide ropes.

4. *Pumping.*—The lift pump; the force pump; sinking pumps; pumps with positive valve motion; the pulsometer; turbine pumps; calculations of the dimensions of pumps; methods of supporting pumps and pipes; strength of pipes; pipe joints; dams to hold back water.

5. *Hauling.*—Tramways; tubs; hand tramming; horse haulage; self-acting inclines; locomotives; single rope haulage; main and tail rope haulage; endless rope or chain haulage; calculations of the dimensions of hauling engines, ropes, etc.; capping of haulage ropes; couplings; haulage clips, etc.; signalling.

6. *Surface arrangements.*—Headframes and pulleys; receiving frames; keps; arrangements of roads on pit bank; tipplers; simple screening and sizing; railway sidings; aerial ropeways.

7. Simple treatment of coking and bye-product ovens.

Adopted by the Mining Education Advisory Board at their meeting of 27th January 1917.

B. HEATON,
Secretary.

CIVIL ENGINEERING COLLEGE, SIBPUR.

Statement No. 6.

No. 7845.

GOVERNMENT OF INDIA.

DEPARTMENT OF COMMERCE AND INDUSTRY.

Simla, the 10th August 1918.

NOTIFICATION.

(*Mines Regulations.*)

For the purposes of Rules 32 and 33 of the rules framed under Section 20 of the Indian Mines Act, 1901 (VIII of 1901), and published with Notification No. 2968-82, Geology and Minerals, dated the 21st April 1906, as subsequently amended by Notification No. 9709-131, Geology and Minerals, dated the 23rd October 1908, the Governor-General in Council has approved of the Leland Stanford Junior University, California, in respect of its Degree of Bachelor of Arts in Geology and Mining, with effect from the date of this Notification.

A. H. LEY,
Secretary to the Government of India.

APPENDIX IV—*contd.*

MISCELLANEOUS—*contd.*

Statement No. 7.

Notification.

No. 3970-Com. / 11761-M., *dated the* 28th / 23rd *August 1918, of the Government of* Bengal, Commerce / Bihar and Orissa, Municipal *Department.*

In exercise of the powers conferred by Section 20 of the Indian Mines Act, 1901 (VIII of 1901) the Governor / Lieutenant-Governor in Council is pleased to make the following rules for Bengal / the whole of Bihar and Orissa.

Rule 1.—For the purposes of these rules; the word "mine" shall have the same meaning as given to it by rule 27 of the rules published with the Government of India Notification No. 2958-82, dated the 21st April 1906, as subsequently amended.

Rule 2.—A competent person or persons appointed by the Owner, Agent or Manager for the purpose shall keep a correct record of the number of persons going below ground daily and returning from below ground daily, and if required by the manager, every person shall immediately before going below ground and after returning from below ground record his presence in accordance with a system approved by the Chief Inspector or an Inspector of Mines.

Provided that this rule shall not apply in the case of any person appointed to carry out duties of superintendence, management or control.

Rule 3.—Every side entrance to a mine from the surface, by which the mine can be entered on foot, which is regularly used as a travelling or haulage road, shall be provided with a gate, which shall be kept closed and locked when there are no persons underground in the mine. Such gate shall be so constructed as to prevent effectually, when closed, the entrance of persons into the mine by way of such travelling or haulage road.

Rule 4.—Every side entrance to a mine from the surface by which the mine can be entered on foot, which is not regularly used as a travelling or haulage road, shall be permanently closed or kept substantially fenced, across the whole width of the entrance. When an entrance is fenced, the fencing shall be so constructed as not to prevent egress in case of emergency.

Statement No. 8.

LAND ACQUISITION (MINES) ACT, 1885.

Particulars required to be furnished by colliery owners to Local Governments when giving notice under Section IV of the Land Acquisition (Mines) Act, 1885, of their intention to work coal under land acquired for a railway :—

(*a*) The name, residence and profession of the person giving the notice.

(*b*) The name of the mine, together with that of the village and district in which the mine is situate.

(*c*) The name of the railway line or of the siding and the main line to which the siding is attached, under which the mine is situate.

(*d*) The names of the railway stations and the mileage between which the said siding or the said portion of the railway land, under which the mine is situate, falls.

(*e*) The number and date of the declaration under which the land was acquired.

(*f*) A tracing showing the boundaries of, and the area over which, the acquired land extends.

S. G. P. I.—1 C. I. M.—6-8-19—1,250.

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